COLMAN'S RURAL WORLD.

ESTABLISHED 1848

DEVOTED TO AGRICULTURE HORTICULTURE HORSES CATTLE SHEEP SWINE ETC.

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COLMAN'S RURAL WORLD

NORMAN J. COLMAN, LEVI CHUBBUCK. } EDITORS.

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While the RURAL WORLD is published at one dollar a year, it has temporarily allowed old subscribers to send actually NEW OR TRIAL subscribers with their own subscriptions at fifty cents a year, in order to largely increase the circulation and influence of the paper. This price is less than the cost of the white paper, presswork, folding, wrapping, mailing and prepaying the postage, saying nothing of any other of the large expenses of maintaining offices, paying salaries and conducting such a paper in a large city. Renewals, unless accompanied by one or more NEW subscribers must be at one dollar a year. All names are dropped as soon as subscriptions expire. The month named on the address tag, pasted on each issue, shows the month subscriptions expire, and renewals should be made two or three weeks before, so that names shall not drop out of list. It is gratifying to the proprietor to be able to state, in his half century's experience in conducting this paper, it has never enjoyed the patronage and prosperity it now does. Its circulation is increasing in a wonderful degree, and its advertising patrons, many of whom have used its columns for a quarter or a third of a century, are more than pleased with results. Let all our friends unite and press forward in extending its sphere of influence. It will do for others what it is doing for you, so get others to join the great RURAL WORLD army and receive the same benefit.

THE PAN-AMERICAN EXPOSITION.

On Monday, May 20, the Pan-American Exposition Company celebrated formally the opening of this enterprise. While the gates have been open since May 1, owing to the heavy snow storm that occurred just a few days previous, which greatly delayed the work of preparation, the opening exercises were necessarily postponed. The Exposition is now in a practically completed shape and all accounts agree that it is marvelous in beauty and interest.

A large number of the directors of the Louisiana Purchase Exposition Company, with a number of invited guests from St. Louis, attended the Pan-American Exposition opening. The party started from St. Louis at 2:30 p. m. Saturday, May 18, and arrived at Buffalo at 8 a. m. on the 19th. The journey was by the Wabash. A special train had been provided by the Wabash management for this trip, and it covered the 720 miles between St. Louis and Buffalo in 16 hours and 26 minutes.

The St. Louis party, in which was the Honorable Norman J. Colman, reports the Pan-American Exposition as being a magnificent success up to this time, and which will draw enormous crowds to the Rainbow City.

Buffalo has had $6,000,000 to expend on this Exposition. St. Louis will have $16,000,000 to expend on her World's Fair in 1903.

CONSERVING MOISTURE.

The farmer used to cultivate his crops mainly to destroy the weeds, but those who are careful readers and observers know that proper tillage is a great conserver of moisture. There are facts connected with this particular phase of farming that every farmer should test for himself. If the principles underlying this great agricultural fact were better understood, much could be done to avert the disastrous results of drouths.

The larger part of the moisture used by the growing crops comes from the water that is stored down deep in the soil and in the subsoil. Though the roots of plants penetrate deep into the soil, yet nature has provided a means by which they may get water from a greater depth than that reached by their roots; this force is known as capillary attraction, and it gradually brings the moisture to the surface. The word means hair-like. When the ground is not covered or not stirred, the air passing over the surface will dry the moisture out rapidly. Every farmer knows that if he puts a mulch of straw or leaves around a tree that the surface of the earth under this mulch will remain quite damp even in a dry season. The moisture was brought to the surface by capillarity, and when reaching the coarse mulch the continuity of the fine hair-like spaces was broken and the moisture was arrested at this point, where it could be used by the tree or plant.

Now the same results may be had in a cultivated crop by tillage. As soon after a rain as it is dry enough, that is when the team will not injure the sod by tramping, go over the crop with the cultivator, stirring the soil about two inches deep. This forms a dust mulch, which prevents evaporation. The implement used to stir the soil makes it looser and less compact, and the water constantly rising from below stops when it reaches the lower part of the stirred soil.

If it does not rain in a week or ten days, stir the soil again, as the surface will soon settle after being cultivated, and will not be such a good mulch.

WHAT IS A FLUKE?

When Winston Churchill made use of the words in his popular novel, "Richard Carvel," "He taught me the folly of ploughing with a fluke," he was referring to a kind of a plow and a method of plowing in use in this country about 100 years ago; yet when we ask the RURAL WORLD readers to tell us what sort of a plow a fluke was and why it was regarded as folly to plow with one, responses are more rare than they would probably have been had we asked for information regarding some abstruse point in the science of chemistry, physics or psycology. Is this because we have so long and so completely abandoned the use of the fluke that it as a plowing implement has completely passed from use and the public mind? We are quite inclined to answer negatively our own question, and to assert that at the present day there is in wide use what may be called an improved fluke, the use of which is commended by many but called folly by some. Mr. Lyon has given us a hint in his letter in this issue as to what a fluke was, and why it was folly to plow with one. Who will add to the information as to what the old-time fluke was and what is its modern form?

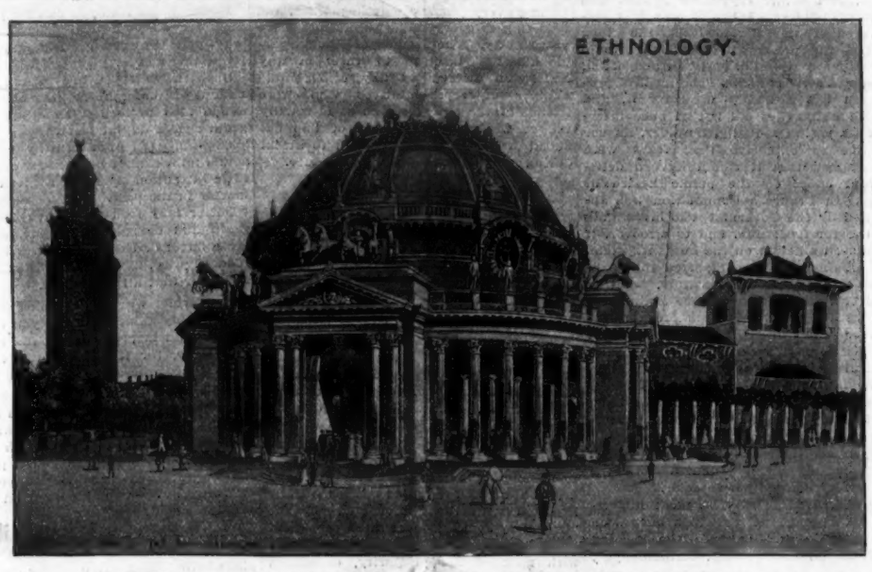
CAPILLARY ATTRACTION.

In discussing the purposes and effect of cultivating the soil frequent use is made of the expression "capillary attraction." Possibly a few words of explanation as to what it means will be appreciated by many of our readers and open their minds to further thought along this line.

We are told that capillary attraction is the force that draws soil moisture from the lower depths upward to within reach of the plant roots. What is this force? Primarily it is a force inherent in matter that makes all bodies and particles tend toward each other, this tendency being proportionate in strength to the size of the body. We say all bodies are attracted toward the center of the earth by the law of gravitation. The apple which Newton saw fall from a tree to the earth was drawn to the earth by that inherent force which tends to draw all bodies together. The apple possessed the same kind of attraction for the earth, but because of the difference in size the attractive power of the earth overcame that of the apple, so that the latter was drawn toward the earth rather than the earth toward the apple.

On dipping a solid body into water and then removing it we notice that it is wet, as we term it; in other words, there is a very thin film of water attached to the body. This film of water is there because of the force of the attraction existing between the body and the water. If one will look closely at the water in a glass goblet he will see that next to the glass the water rises a little above the general surface; in other words, the water seems inclined to climb up the side of the goblet. If a small glass rod is dipped into the water in the goblet this tendency of the water to climb up can be more readily seen, and if a small glass tube is at hand and it is thrust into the water the climbing capacity of the water will be still more manifest. The smaller the tube, the higher will the water rise, and when so small as to be likened to a hair (capillus, in the Latin language), it will be seen that the water will rise to a considerable height; hence we have the word capillarity as descriptive of the tendency of water to rise through small tubes.

But it must not be understood that capillarity operates only through straight hair-like tubes; it operates through any substance that is full of pores or small spaces, that are connected one with another so as to make a continuous passage, no matter how devious. The oil that passes up from the bowl of the lamp through the wick to the flame at the burner does so by capillarity; and so does soil moisture rise through the minute interstices between the particles of soil to where it can be taken up by the plant roots or licked up by the atmosphere which, when it is dry, has a great attraction for moisture. This last process we call evaporation, and is what the farmer ordinarily wants to check as much as possible during the season of active plant growth, so that his crops may be abundantly supplied with moisture, which is an absolute essential to growth, it being impossible for the plant to take up its food from the soil by means of the roots except it be in a soluble form.



ETHNOLOGY BUILDING, PAN-AMERICAN EXPOSITION, BUFFALO, N. Y.

LAFAYETTE CO., MO., MELANGE.

Editor RURAL WORLD: I have read with much interest the several articles in the RURAL WORLD on the hired man. I have had much experience both as a hired man and in hiring the hired man. In the many things said upon the subject much has been as to work hours, early, late and Saturday lay-offs, etc., but these generally come from the hired man's side.

I will just give you a little of my experience as hired man on the above. I went into a store as store boy at 17 years of age, for my board and clothes the first year. My duties as hired man were about this: Up at daylight, store swept out, fire made in winter, water brought for the day, store dusted and goods all in shape for day's business; to breakfast and right back, work till noon, dinner and back in a hurry, work until supper, straight back, work as long as a customer was in sight, keep the store open to 10 o'clock, customer or no customer.

No eight hours, or Saturday lay-offs. After the first year I received a salary, but the same routine of duties was kept up for over seven years, when I went into business on my "own hook."

The first five years as hired man I lost just seven days to my employers—now, how is that for hired man, eh? I merchandised for over 40 years, having during the time, I believe, about seven hired men or "clerks," and with but one single exception never had a "clerk" that seemed to study my interest in the least.

As to the hired man on a farm, my observation has been that a good hired man is not going to be a hired man very long, and that is one cause of good ones being so scarce. I have no patience with a man I employ who does not think his time is mine by purchase and is trying to "racket" me by shirking, forgetting, loafing, never seeing the smallest thing that is to do, etc.

Another question, or rather subject: I have been reading with much interest the several correspondents in RURAL WORLD concerning selling the farm to buy more land for the boys. While I think it not only right, but a duty for parents to help their boys (yet I never had any help), my observation in a great majority of cases, trying the experiment of selling a good farm home to "help the boys," is a mistake, and I would say, don't do it.

There are several other subjects I read in RURAL WORLD that I would like to express an opinion upon, but as this is now, I fear, too long, will postpone to a future time. J. L. MARSHALL.

SPRING DAYS AT SEVEN PINES.

Editor RURAL WORLD: The king bird appeared here on May 2; and the humming bird and the cuckoo came during the same day—the 7th. The so-called catbird arrived along during the same week. The list of migratory birds for this latitude is now completed, and they are rejoicing in their northern homes and are sending forth their sweetest notes. Out on the prairie the other day, I saw that peculiar wader, the bittern. This bird seeks concealment and is seldom seen only in flight. The bittern is noted for its strange noise, which suggests liquid or sub-aqueous origin. The sound may be heard for miles. In the tall water lily plants the odd little rails were chirping and screeching to a degree far outranking themselves if estimated by size. The red-winged black birds were using diplomacy in the way of sweet voice to divert the visitor from the location of their nests in the tall flags in the prairie pond. Being thus homesteaded above the water, the nests of these birds are pretty safe from enemies.

THE CANNING AND PICKLE industries of our county are concerns of much importance, and their owners are urging the farmers to launch out far and wide in planting cucumbers and tomatoes. The confidence in these enterprises is ruling high. Immense tanks of a thousand or more bushels of pickles await the new crop, and Mr. Wagoner, of the Alexandria canning establishment, informed me that he would like to receive five or ten thousand bushels of tomatoes daily this summer. The pea is a product of considerable importance, and onions are produced here on the valley lands for pickling purposes. These four products come in easy succession of time, so that a farmer can easily care for all of them. The peas are harvested so early that corn or other crops may follow upon the same land. These mixed industries count as a relief to the soil which has been subjected to continuous corn, or corn and wheat for a long series of years.

THE WEATHER.—May 5, 6, 7 and 8 were days of low barometer in northeast Missouri. The storm area kept lingering in the Upper Mississippi Valley. At Seven Pines a mild rain began at noon on the 5th, followed by a severe hailstorm which damaged foliage and some fruit. The earth was nearly covered by hail, which averaged a half-inch in diameter. A few were much larger. Showers continued until the evening of the 8th, and the hot and parched earth received a good soaking. My rain gauge recorded 2¾ precipitation. All the crops were benefited by this liberal downpour, and farmers rejoiced.

GOOD ROADS.—Our county is becoming actively interested in good roads, and the people have formed themselves into working order for the promotion of the cause. A convention is held at Kahoka once a month. JASPER BLINES.
Clark Co., Mo.

SHALLOW VS. DEEP PLOWING.

Two Arkansas Readers Take Issue With C. D. Lyon.

Editor RURAL WORLD: Your Ohio correspondent is evidently not "dead sure where he is at" in his advocacy of shallow plowing. Is it not just possible that conditions in his "neck of woods" are altogether different from what they are with a majority of his readers? Where there is tile drainage and deep freezing below the plow level, which loosens up the subsoil annually, conditions would be very different from what they are in the sunny south, where frost never disturbs the soil. Again with sandy or gravelly subsoil, deep plowing might cause the leeching of the soil; but in an experience of upwards of 30 years, extending from the Niagara river to the Short Grass country of the West, and South to the Lower Mississippi Valley, I have found the injunction to "plow deep" to be a good one to follow in the great majority of cases. The trouble with the shallow advocates, I think, is that they plow too deep at one plowing, turning up too much raw soil. Use the subsoil plow and let your turning plow down gradually, say one inch annually, as the humus from decaying root and plant fibers increase. Study the "Campbell system" of subsurface packing and mulching. Note the success of Stark Bros. in their Colorado orchards, and friend Lyon's experience seems to be the one exception that "proves the rule."

However, he is quite right about plowing with a single mule, not being plowing at all. Now, where is Wm. Manning? And Conrad Hartzell, wake him up, too. Is there an "iron clad rule" that is always right; any absolute right or absolute wrong, or does it all depend on environment? The wrong are half right and the right are half wrong. We must adapt ourselves to our surroundings. If the rainfall is held on the surface by a hard crust a few inches below the surface, so it has to flow off, washing the few inches of loose earth as it goes, carrying the humus all to the bottoms, then shallow plowing would be shallow practice, while a deeper system of breaking up the subsoil, that would let the rainfall percolate deeply, being reserved for future use, and would also allow the surface to dry more quickly because of the deeper settling of the water in the soil, would sound like sound practice.
Arkansas. PHILLIPS.

Editor RURAL WORLD: Mr. Lyon's article in the RURAL WORLD of April 24th, in criticism of mine in an earlier issue, was read with much interest, but owing to the pressure of farm work I have not had time to reply to his arguments.

In comparing deep vs. shallow plowing we might first consider why we use the plow at all. Our first object is to break up the surface of the soil so it may absorb the rainfall instead of having it run off and wash gullies in the fields. It dosn't need much consideration to convince one that the rainfall will be absorbed more quickly and freely than it would be in an undisturbed condition, and the deeper the breaking the more water can go down. Our next purpose in plowing is to loosen the soil so as to admit fresh air to the roots of plants. Our third purpose is to make it easy for the roots of the young or quickly growing plants to penetrate the soil. Considering these objects to be attained, I look upon deep plowing as being preferable to shallow, even if it is not possible to put the land in perfect tilth to the full depth plowed. The objection of Mr. Lyon that there would be open spaces left in which the roots could not grow would hardly hold good, as with the first rain or two these open spaces would become closed, or at least by the time the roots got down so far.

Our principal aim, however, is to control the water supply, for plants require a large amount of water for their life and growth, and it is necessary that the supply should be abundant at all times. If the evaporation from the plant is greater than that taken through the roots the leaves wilt and the plant may die. As Mr. Lyon well knows, if a field is plowed many years at a uniform depth, it has a tendency to form a compact layer of subsoil just below the depth plowed, which may become almost impervious to water, which makes it very difficult for the rainfall to be absorbed as fast as it falls and increases the danger of injury to the soil by washing. Shallow plowing, in my opinion, by allowing the light, loose topsoil to be washed away, is responsible for much of the worn-out soils in this country. A field will not wash nearly so badly if it is not plowed, but it will hardly wash at all if it is plowed deep and the subsoil left in such a condition that it may absorb the rainfall. The deeper the plowing the more water stored away for the use of the crops. Naturally, when ground is first plowed the raising of the ground water to the surface is interrupted as the capillarity of the soil is broken up and the spaces are made too large. This is remedied in a measure by rolling and harrowing and packing the ground to reduce the distance between the soil grains, but the connection will not be perfect until a good rain falls, which, as it percolates through the soil, will bring them together. For all practical purposes, the surface can be fined to a sufficient depth, though it can be done to any depth by putting enough work on it as in the preparation of a garden.

I do not think Mr. Lyon has an exact idea of capillarity or capillary attraction when he speaks of the water rising from the subsoil through the channels made by decay of roots and those bored by earth worms and other insects. The root that would reach two or three feet into the subsoil makes too large a hole for water to rise in it by capillary action. These earth worm holes and such would furnish excellent drainage and also aerate the soil, and in this way be very beneficial. Mr. Lyon certainly believes a dust mulch the best thing to prevent evaporation. If the dust mulch is perfect the spaces between the soil grains will be as small, or smaller, than his earth worm holes, and he knows that very little water gets through his dust mulch.
THOS. E. MOORE.
Washington Co., Ark.

PLOWING.

Notes From an Ohio Farm.

Editor RURAL WORLD: You have asked "What a fluke is and why it was folly to plow with one." Now, a literary friend says that there were anchors for small vessels made only partly of iron. He says they much resembled an overgrown railroad pick having a wooden stem or handle. These anchors made a kind of a rude plow which worked on the plan of the southern jumping shovel and, of course, did very poor work, hence "the folly of plowing with a fluke."

Before me lies a copy of "Spurrier's Practical Farmer," published in Wilmington, Del., in 1793 and dedicated to "Thos. Jefferson, Secretary of the United States." Spurrier describes the plow he used in Hestford, England, and he descants on its excellence. His description of it—much abridged—may interest our young readers. Says he: "The principal parts of this plough are the head and the tail; the head contains the wheels, their axis passing through a box, and turning round in it, and in the wheels. There are fixed in this box two crow staves, which are flat, narrow boards, each having two rows of holes, whereby to raise or sink the beam of the plough. Behind are a pair of gallows, through which the crow staves pass at the top, and to these are fastened what they call the wilds, which are rings on crooks of iron by which the whole plough is drawn." He goes on for another page describing the "tow chain," the "bridle chain," the "stake" and the "withe," and two more pages are given to the "fore sheat," the "hinder sheat," the "coulter," the "dorck," the "earth board," etc. The "beam" was eight feet long and he says ash is the best wood for plough beams. He does not tell us how many horses were needed to draw the machine, but further on he says that "the two-horse farmers seldom cultivate the land as it should be."

I did my first day's plowing in 1869 when I was only 13 years old, and I am glad that my oldest boys have seen the plow I did it with. It was a "John Thompson iron beam, 14-inch, right hand," and it weighed 122 pounds without the handles when I sold it for old iron. About 1871 father bought a George Miller plow, then traded for a Collins, then bought a Hillsinger. I used this last from 1879 to 1883, when I got a new Deere; this was wrecked in an accident and I bought another Deere, a new pattern, but it does not suit me as well as did the old one. All plows as made now can be described as the Kentuckian did the whisky; he said, "All whisky is good, but some kinds are better than others." It is only a matter of taste and of soil; any plow will scour in my soil; in some places a special plow is necessary. The old-time "side-draft" is eliminated from the modern plow, and all draft about alike. We prefer an all-steel plow so we can have it sharpened when dull. C. D. LYON.
Southern Ohio.

GRAND PRAIRIE, ARK., NOTES.

Editor RURAL WORLD: Our farmers are all rejoicing over a fine rain which fell last Sunday, May 12. It was badly needed in this locality, no rain having fallen for over three weeks. The roads were as dry and dusty as they usually are in August. Crops were beginning to suffer. Corn and cotton were not coming up well, and oats were beginning to head out very short and close to the ground.

LARGE ACREAGE OF COTTON.—There is a larger acreage of cotton put in here than usual, and I presume it is the same all over the south. The result will probably be four-cent cotton this fall, and a great many farmers will come out in debt. The mortgage business is the curse of the south, and as long as our people continue that, and depend almost exclusively on the cotton crop, they need not expect anything else but poverty and hard times. If our farmers would only put in just half as much cotton as they usually do, and raise everything else that they eat and feed, they would get just as much money for their cotton, with half the expense of handling; and when it was sold they would have just that much clear money at the end of each season.

GUARDING AGAINST TEXAS FEVER.—I recently purchased a fine yearling Shorthorn bull from a party in Barton County, Missouri. As a precaution against Texas fever, I am keeping this fellow up in a stable during the day and turn him out in a lot for exercise at night.

FOOT EVIL.—Our cattle were troubled some last winter with a lameness in the feet. Some called it the foot evil. The trouble seemed to be between the toes. The cattle we were fattening seemed to be bothered the most with it. I also had an Angora goat that was lame the same way. I treated them with a strong solution of blue stone with a little carbolic acid added. Will some one please answer if this was the correct treatment.

BUFFALO CLOVER.—I enclose a small sample of a clover that grows wild in an old field near here. I would like for some one to name it for me, and also give its habits and probable value as a hay or forage crop. It resembles the common red clover, but the leaves are smaller. The leaves and stems also have more of a redish or purple color than the red clover has. It is said to have been introduced into this country during the war by the Union soldiers, who camped and fed their horses on this field.
Monroe Co., Ark. F. TROTTER.

We referred the specimen of clover to the Missouri Botanical Garden and Mr. J. B. S. Norton, Botanical Assistant, identified it as Buffalo clover (Trifolium reflexum), an annual or biennial species with downy stems, found wild from western New York, Ontario to Iowa, Kansas and southward.

FROM NEW MEXICO.

Editor RURAL WORLD: The weather has been very fine here since the middle of April. It has been warm without much wind. The past winter was an excellent one for cattlemen. There was a good deal of rain and some cold snaps which kept the grass from coming up too early. The weather was pretty hard on the fruit-growers, however, as nearly all the peaches have been killed. In the Nimbus Valley, about thirty miles from here, the soil is very productive and is irrigated by water from the Nimbus river. Excellent crops of apples, peaches, pears and garden truck are raised on this land.
JOHN E. LIGGETT.
Silver Springs, N. M.

PETTIS CO., CEN. MO., NOTES.

Editor RURAL WORLD: Peculiar conditions prevail here. Latter half of March and first half of April were characterized by very much and frequent precipitation. Oat sowing was much delayed in consequence and much land which would have been seeded to oats or flax was reserved for corn.

Since the middle of April there has been less than one inch of precipitation and field work has not been delayed an hour by rains.

Oats, flax and spring-sown grasses are faring badly and meadows and pastures must suffer seriously unless rains relieve them soon. Where fields were not finely pulverized before planting, corn is making a poor "stand"—some are planting over. A few are not yet done with their first planting. During two weeks of the past month the weather has been cool, with frost here on May 13, which has tended to retard the growth of corn, and moles, birds, mice, root louse or aphis and ants have done much to damage the crop. The soil has become so dry that corn must be planted unusually deep to insure germination and then it appears to be a slow process this season.

Owing to the constant and regular work of teams during the past month, they are more than ordinarily worked down and reduced in flesh.

Wheat is very promising as yet, with a few reports of chinch bugs.

Clover meadows are quite good, but the timothy or timothy-mixed meadows appear unusually weedy.

Our nurseryman, Geo. H. Shepard, who has a good record at the St. Louis Fair, says the fruit crop will be a full one of most all classes and varieties. Live stock is healthy and bringing good prices.
May 19, 1901. W. D. WADE.

MISSOURI WEATHER AND CROPS.

The U. S. Department of Agriculture, Climate and Crop Bulletin of the Weather Bureau, Missouri Section, for the week ending May 20, 1901, is as follows:

The mean temperature of the past week differed but little from the normal and there was more than the average amount of sunshine. In a few of the northern counties light frosts on the 13th and 14th injured tender garden vegetables and some varieties of fruit. Good rains fell in the west-central and southwestern counties on the 16th and 17th, some localities receiving from 1½ to over 3 inches, but over the remainder of the state the rainfall was generally too light to be of any material benefit and the drouth has become very serious. Local hailstorms did some damage to fruit and gardens in Cass and Lawrence counties.

Corn planting is being completed as rapidly as possible, but in many counties no more ground can be prepared until a good rain has fallen. There is much complaint of uneven stands and over a large part of the state corn that is up is making but little growth. Where good rains have fallen the crop is doing finely. Cultivation is becoming general and some fields in the southern counties have been plowed the second time. Cut worms, moles and mice are doing considerable damage in a few counties. Cotton, in the southeastern counties, is being well worked out and is generally doing fairly well, except in portions of Dunklin and Pemiscot counties, where there is complaint of poor stands owing to drouth and cool nights. Flax, in the southwestern counties, is generally in poor condition.

In most of the northern and west-central counties wheat still promises a heavy yield, but in many of the central and southern counties the crop has been shortened by the drouth, in some districts from one-fourth to one-third. Considerable further damage has also been done by insects in a number of the southwestern counties, and rust is reported in a few localities. Oats are still doing well in most of the northwestern and a few of the west-central counties, but elsewhere they have suffered from the drouth to a greater or less extent. In many of the eastern and southern counties the crop has been greatly damaged, and in some localities practically ruined. Considerable damage by insects is also reported in a few counties. In a number of the western counties meadows are making good growth, but over much of the state the outlook for the hay crop is discouraging. In some counties considerable young clover and timothy have died.

Worms are doing much damage to orchards in the central and northern sections, and there is complaint that apples have not set well or are dropping. In a number of the principal strawberry producing counties that crop has been greatly shortened by the drouth. Peaches still promise a good crop, as a rule. Except where good rains have fallen gardens are generally making slow growth, and in many of the southeastern counties potatoes are being seriously injured by the dry weather.
A. E. HACKETT,
Section Director.
Columbia, Mo., May 21, 1901.

The Dairy.

Farm separators are rapidly coming into use in the great creamery state of Iowa. Dairy Commissioner Norton states in his last annual report that in 1896 there were 904 in use in the state; in 1899 the number had increased to 1762, and in 1900 to 3,332.

The dairy business seems to be prosperous in Kansas. The Continental Creamery Company of Topeka has 198 skimming stations and factories and is doing a larger business than any other like concern in the country. For some of its plants it is paying a good round price. It is related that recently a representative of the company called on Mr. A. G. Eyth of the Enterprise, Kan., Creamery, and said to him: "Write the amount on that check that will be required to purchase your creamery." Mr. Eyth wrote $23,000 and handed it back for signature, and in less than 60 seconds the ownership of one of Kansas' best creameries had passed from Mr. Eyth to the Continental Creamery Co.

WILL HURT PRODUCER AND CONSUMER.

In the initiatory number of the "Public Health Record," a copy of which has come to our table, we note that the first place is given to an article on "Preservatives in Milk." The article is by one of the editors, Dr. Herman Betz, who is Acting Chief Food Inspector of the New York Health Department. The importance of the subject discussed is such that we feel warranted in quoting the article in full and commending its perusal to our readers. The use of any and all substances that are added to milk for the purpose of preserving it should be condemned and forbidden, not simply because of the harmful character of the substances and the injury they do to the milk, but also because, as Dr. Betz points out, their use encourages slovenly and unsanitary methods of handling milk. The use of milk preservatives results in still greater need for their use, and will lead in the end, if not stopped, to the abandonment of milk as a human food.

A SOUTHWEST MISSOURI HERD.

Editor RURAL WORLD: Some time ago the RURAL WORLD contained a statement of the milk and butter production of "Buff Jersey's" herd. While our cows may not be doing quite so well, still when one takes into consideration the fact that we are entirely dependent upon hired help in the milking and feeding of the cows we feel that we have reason to think well of our cattle.

At present there are 71 cows giving milk—eight with first calf and ten with second—and from these we produce per day 230 gallons of milk from which we make 83 lbs. of butter after taking out whole milk for young calves and enough for a family of five. Last summer, with 65 cows in milk we made as high as 78 lbs. of butter and we know that when the dry weather which now prevails here is broken, we shall make six or seven more pounds from our present number of cows.

HOSMER DAIRY FARM.

Marshfield, Mo.

CEDAR HILL JERSEY FARM NOTES.

Editor RURAL WORLD: The spring's work is now well in hand. All vacant corners and odd patches around our buildings have been sown to rape for the hogs and young stock. Our field of Canada peas and oats is up and looking fine. We will soon top dress this crop with land plaster and hope to see good results follow. In my boyhood days it was my job to drop land plaster in the hills of corn and potatoes, while my father each spring sowed it heavily in clover fields. Our boys have been using the plaster in the cow barn the past winter, making walks and gutters dry and sweet.

During the season of institutes and dairy meetings, I am an agriculturist, but when I get home and wife folds up my good clothes and lays them away, and I don a pair of bib overalls and an old felt hat, I am just an old plug farmer. But while my good clothes are laid away I keep my thinker under the old felt hat, where I can use it once in awhile. Most of my neighbors think my thinker has missed a few cogs lately, because our herd of Jerseys is yet in the stable and will be there till June 1. True, the bluegrass does look green and inviting, but it is a delusion—soft and washy. The butter and cream from it are of poor quality, besides a herd of cows running on it in May will shorten the season of grass fully 60 days, and this shortage comes just when cows need it the most. We have yet 30 days' feed of sorghum ensilage and 100 days of corn ensilage, so we are feeling quite independent.

Well, brother dairymen, how about those flies? Are you going to allow them to torment your herd this year as of old? Do you know what they cost you each season? If you kept a daily milk record you would soon realize what the result is in milk yield. One dollar expended in a repellent will save many times its cost in comfort and product. We never let a year pass without using all that is necessary to keep both our horses and cows comfortable. We have ordered a five-gallon sprayer worked on the compressed air plan which we will use for applying our Shoo-Fly to cows.

For a day or two I will be quite an agriculturist, as I am invited to speak before the McDonohue Co., Ill., Farmers' Institute on the 29th inst. My subject is "Silos and Ensilage." The president of this institute has visited our farm and has seen the advantages of silos. He writes me that there are several farmers of his county who wish to build silos this season, hence the holding of their institute this early in the season.

Monmouth, Ill. "BUFF JERSEY."

BUFF JERSEY'S CREAMERY.

"Buff Jersey's" creamery, a picture of which we show above, is divided into four rooms. The main room is 14x16 feet, in which is located the cream vat, No. 3 De-Laval separator, churn, aerator and wash sink. In the refrigerator room, which is 10x12 feet, is the butter worker and the printer. The boiler room is 8x12 feet and the engine room is 10x14. The engine is of nine-horse power and the boiler a ten-horse 30-flue horizontal. The engine runs all the creamery machinery, ensilage cutter, corn sheller, feed mill and grindstone.

PRESERVATIVES IN MILK.

By Herman Betz., M. D., Ph. G.

"That it may please Thee to give and preserve to our use the kindly fruits of the earth, so that in due time we may enjoy them."

There is not anything which so pathetically shows the helplessness of man as this earnest appeal to an unseen, but all-powerful Providence, by means of this old and revered prayer; an appeal which had been forced from him by want and famine, for—"That which nature prepares for food is daily bread." If to-day's demand leaves it unused, she unfits it for use and returns it to her laboratories for reconstruction, by nature's chemical means or through the intervention of the bacilli.

In time science intervened and saved the food that nature would destroy; the supply and demand became more evenly adjusted, and famine "stalked no more" in civilized lands.

As population became denser the demand upon science to produce preservatives became more urgent, and to-day this demand is all-powerful. Expeditions for scientific, commercial or military purposes peremptorily demand preservatives for food for man as well as beast. The very victories attend those nations whose resources are most prolific in supplies of that kind.

Milk being one of the oldest crude foods and most desirable in its original condition, naturally became very early the subject for investigation. In countries where low temperatures were easily obtainable, a solution was easily found; the "molken," of Switzerland, have been prepared very early and are used up to the present day, being simply frozen milk, but can, of course, only be used in a region where low temperatures can be relied upon. In mountain-climbing it has been found most serviceable, but for general use freezing is not employed outside of Switzerland, Sweden and Norway.

Some years ago frozen milk was delivered in London direct from Sweden, especially prepared for this particular trade, but has now been abandoned. Cold, of course, is really the only preservative which, up to the present time, has not been objected to by health authorities, as it not only leaves the milk in the condition it was originally obtained, that is, no chemical change takes place, but it also arrests the growth of bacteria, against which all efforts of chemical preservatives are directed.

For city trade, the honest shipper requires no preservative; after the animal heat has escaped the cooling-well is all that is required until shipping time; railroads, especially those which make an effort to obtain and keep milk traffic, take all necessary precaution to have milk arrive at the terminal station at a proper temperature, usually much below 50 degrees F., and the development of germs is much restricted. All this, of course, requires labor, and also, of course, expense; there is, therefore, an excellent opening for the chemist and a great many preparations, compounds or chemical salts have been recommended and used.

SODIUM BICARBONATE.—Among the first used was sodium bicarbonate or baking soda, which, on account of its alkaline action, was to neutralize the work of the acidifying bacteria in milk, or neutralize such acid as has already formed, but the difficulty in using this preparation is that the proper quantity to use is difficult to determine; too much would give the milk an alkaline taste, and too little would not have sufficient effect had the milk formed lactic acid in some quantity. It is hardly ever used now. In chemical analysis of milk it is readily detected on account of the increase in the ash and the subsequent flame test.

BORAX has been used, before boracic acid came into use, but that has also much of the objection which is brought against bicarbonate of soda, as it is related some to borax, the latter being a sodium biborate. This salt also increases the ash, and in the flame test is even more readily discovered than the former, as it gives a beautiful green color in the oxidizing flame.

BORACIC ACID, ever since its discovery and its reputation achieved as a general antiseptic, was, and is, a great favorite with the unscrupulous as a milk preservative, and even more so as a preservative for cream, because cream is kept longer than milk. In fact, for the proper development of flavor due to a specific growth of benign micro-organism it must be kept for some time, but it is right here where the user of a chemical preservative works his own harm, by reason that boracic acid has no selective action, but kills off, or prevents the growth of benign or well inimical bacteria. Boracic acid, though not a poison, is more powerful by reason of its acid properties in its physiological action than borax. Boracic acid is frequently sold under the name of "Preservaline" at a fancy price.

SALICYLIC ACID is another preservative which has found favor, as it has no odor, is a white crystaline powder and nearly tasteless. When it was first discovered it was heralded as the long looked for preservative, which would solve many questions of transporting food-stuffs of all kinds. The medical profession has a kindly word for it, and health authorities did not at once interdict its use. Gradually, however, its use became so extensive that fears were entertained that it would have a detrimental effect on the public health at large. In France a Commission was appointed by the Government to investigate its use for foodstuffs, and to discover, if possible, its action on the human system. The Commission soon reported that salicylic acid added to foodstuffs, whether solid or liquid, should not be authorized, and its use since has been strictly forbidden. The United States Dispensatory, the acknowledged authority on pharmaceutical and chemical preparations, says: "Salicylic acid has been used for the preservation of various articles of food, but the employment of it should be interdicted. In the chemical analysis of milk salicylic acid is readily detected by iron test solution, which produces with the acid a very decided purple color."

FORMALDEHYDE.—The most important of all preservatives which have been used in milk "to increase the keeping qualities" is, undoubtedly, formaldehyde, or as it was at first known under its patent name "formalin;" it is undoubtedly a powerful germicide, although its powers are generally overrated, its use in that direction cannot but be acknowledged. But what has been stated above in relation to the non-selective action of chemical preservatives is also true in regard to formaldehyde, it kills off, or prevents the growth of bacteria, good or bad, with a few exceptions. Among these exceptional ones must be mentioned the bacillus known as "coli communis," which, while not present in milk itself, may be present in the human intestinal tract, especially in summer time, when it is the cause of diarrhoea and dysentery in children, as it sours milk. In such a case the addition of formaldehyde will enable the bacillus to flourish even if the dilution be as small as one drop to one pint of milk. This preparation is sold in the market under various names, such as "Freezine," "Preservaline," and other fancy names. It is usually guaranteed to be harmless, and it is intimated that it cannot be detected by the chemist; and, although a certain amount is directed to be added to milk, it is recommended that additional amounts can be used afterward without harm. It is for this reason that the use of all kinds of preservatives is to be discouraged, because an ignorant or indifferent person, thinking that by the use of a preservative milk could be kept indefinitely, would become careless in the keeping of the milk, or in the sanitary condition under which the milk is obtained, by relying upon the corrective properties of the preservative.

ANOTHER PHASE.—When preservatives are added to milk there is still another phase to be considered beside the anti-bacterial action, namely: The chemical action on the casein and albumen. Most all preservatives mentioned above harden the albumen, or casein, to such an extent as to make the digestion of the same almost impossible, giving rise to irritation in the digestive and intestinal tracts, and if this should happen in summer time, when there is always a tendency toward diarrhoea and dysentery, the addition of preservatives is of the greatest possible danger; and, therefore, the use of all chemical preparations should be decidedly discouraged and frowned upon, and health authorities have, therefore, good cause to absolutely prohibit their use.

CURING A SELF-SUCKING COW.

I see in your paper the question of how to break a sucking cow; just as easy as milking, and 5 cents will break a dozen, says G. N. McMurry in "Hoard's Dairyman." Go to the drug store, get 5 cents worth of capsicum, and provide yourself with a small pepper box; fill it part full, take it with you in your pocket; when done milking, having the teats perfectly dry, sprinkle the capsicum on the teats and throw it in the soft hair on the bag and flank, repeat every time you milk and oftener if you are where the cow is.

Could you happen along at the time she was sucking, and hold the box over her nose, and shake out a little, would stop it for the time sure, as they are breathing very hard, and they immediately have something else to do. The same purpose, or effect, is brought about by sprinkling or throwing on bag and flank, as they breathe very hard, sucking the pepper up the nose and getting it on the tongue from the teats. They look out for another job soon. I had to keep it up more or less for two or three months, but won entirely.

I was bothered; tried everything heard of almost; the capsicum did it to perfection, no ropes or chairs and strings needed. Watch the cows, because they will at tempt it four or five months after, and more particularly when lying down, calving; my cow commenced it at that time; I caught her and let her have a few snuffs, and ended the trouble, as it has been two years since. Simply try it.

We draw the line on hard-milking cows. A kicker can be trained out of it or tied; but life is too short and too precious to waste on a hard-milking cow.

OLEO'S DESPERATE FIGHT.

The oleomargarine interests have "gone up against" the dairymen in Pennsylvania, and have been turned down with the usual overwhelming majority. The dairymen of the Keystone state advocated the passage of the Harris bill, and Senator Muehlbronner of Pittsburg, himself a manufacturer of oleomargarine, used his political position to protect his business. The result in the house was the passage of the bill by a vote of 146 to 38.

Under the provisions of the bill oleomargarine must not be colored, and every seller of it must be licensed, from the manufacturer at $1,000 a year down to the boarding house keeper at $10. Books of manufacturers and dealers must show every transaction and be always open to the dairy and food commission. All packages must be marked. Heavy penalties are provided for violations of provisions of the law, increasing with repetitions of offenses, and sales by the accused must cease during the progress of any suit. Any oleomargarine sales during the progress of a suit shall be punished as contempt of court. There are other drastic provisions in the bill.

This is probably the most drastic oleomargarine law ever passed in the United States, and the oleomargarine makers all over the country united for its defeat. In this case they worked hard and openly, pulling every possible wire in politics, and resorting to every tactic possible to drive votes away. The friends of oleomargarine did not hesitate to threaten any legislation desired by any considerable number of representatives who were friends of the measure, and as is usually the case, placed the defeat of this bill ahead of anything they desired to attain during the session.—Chicago Produce.

THE MODERN WAY.

Prof. McKay's Method of Making Butter.

When Prof. McKay intimated that the butter from Ames which received a complimentary score of 98 at St. Paul was made by a new process which might revolutionize buttermaking, we put ourselves in an attitude of waiting to hear something new and radical, says the "Creamery Journal." Probably he did not mean to be so understood, for the recital of the method when made public did not bear out any such construction. Owing to the limitations of language and the limitations of understanding, we are all prone to misunderstandings. However that may be, the method detailed is essentially identical with that advocated by the "Creamery Journal" over and over again. It is to skim thick and thin the cream with milk of known purity, depending upon this milk for the propagation of the right kind of germs and so handling it that the desired germs may "have the start" and dominate the fermentation. The only thing we see which is new is that the selected milk was obtained from a man by the name of Hanna, and we fail to see the farmer's name has anything to do with the results.

But it is well that the professor has struck out in this line, and that he has so publicly brought it to the notice of the buttermakers. As stated many times in this journal, skimming milk of unguaranteed quality as thick as practicable leaves in but little milk, and therefore a minimum of the germs from that milk. Then, by fortifying with good milk containing the right kind of starter germs, these germs gain the mastery and improve the flavor, compared with what it would be if all the milk received had an equal chance to inoculate with the germs it contained.

Good, clean milk to use in propagating the starter and to dilute the thick cream to ripening and churning consistency is no new idea, but it is a rattling good one for constant use, and it is something that no buttermaker can afford to forget for even one day.

WHAT CAN BE DONE.

The Briar Cliff Manor Farm of New York sent fresh milk, butter and cream to the Paris Exposition. Regarding the exhibit Major Alvord said: "The French people will not believe that this milk is fresh, but think a preservative has been put in it." The French authorities asked for a sworn affidavit stating that no chemicals had been put in to keep it from souring. It was sent to them.

How was the milk handled?

"The milk is kept wholesome after leaving the cow by a system of safeguards observed during the milking, in the dairy house, and while the milk is in transit from the farms to the consumer. The precautions observed during the milking are sterilized white duck suits for the milkers, careful washing of hands after each separate cow is milked, milking through a seive into the pail, and straining the milk when it is poured from the pail into the can. The 'foremilk,' as the first milk that is drawn is called, is also discarded, thus preventing any bacteria which may have found their way into this part of the milk from getting into milk that is kept. All the milk is exposed to the barn air but a very few minutes, and is taken into the dairy just as soon as the cans are filled."

AMERICAN CHEESE ABROAD.

An increasing demand for fancy cheese of foreign name and manufacture has spurred American cheesemakers on to great activity, says the New York "Sun." For many years the so-called "Yankee" cheese, green and mellow, held full sway, the Edam, the Limburger and the pineapple cheeses, all products of the middle west, being its only rivals of popularity. The American palate began after a while to turn toward foreign fancies and the imported cheeses became immensely popular. The American quickly noticed this, and in a little while the best of Brie Swiss, Neufchatel and Camembert cheese were products of the United States. The retail trade, imagining that European goods are better than the domestic article, demands that the American product be stamped "Made in France," or in such country as seems most appropriate.

Indeed, so far has this been carried that American-made cheese stamped as of French manufacture was sent to the last Paris exposition, entered in the French section as a domestic product and received all the first prizes over the real French article. The French cheesemakers do not as yet know of the deception practiced upon them.

We hope every one of our readers will send for the carriage catalog of the Ohio Carriage Mfg. Co., 12 West Broad St., Columbus, O. It's free and it contains more vehicle information and better bargains than any other book we know of.

DAIRY NOTES.

The good dairy cow is not always the fat and sleek one.

Proper feed shows the breed in dairy cows at milking time.

Sudden changes in feed will cause the cows to shrink in milk.

Ice-cold water is a certain aid in diminishing the flow of milk from a cow.

A tin vessel containing milk is much preferable to crocks or stoneware vessels.

A good remedy for swollen teat on a milch cow, is equal parts of glycerine and lobelia.

The food for the cows should be of such a nature that no bad taste will be imparted to the milk.

Webster does not, in his definition of butter, allude to oleomargarine as a butter product.

The separator on the farm removes the possibility of rearing a stunted calf on skim milk.

One good dairy cow is superior to three poor cows in the dairy. The difference is in the cost of feed.

Get the milk from the barn into a cool, well-ventilated place as soon as possible after it has been drawn.

Don't feed the skim milk to the calf sour. Heat milk to about 90 degrees before feeding.

Get rid of that idea you have to starve the calf if it makes a good dairy cow. It's a delusion and a snare.

Raise all the feed you can for your cows at home on your own ground. In that way you can get good money for the crops themselves.

Until the calf you are raising on skim milk is six or eight months old it is not a bad idea to feed a small quantity of grain once a day at least.

The importance of healthy cows and sound milk cannot be over-estimated. Too little attention has been given to the matter in the past.

Butter may look nice, have the correct grain and be salted to taste, still if it lacks flavor or has a bad flavor it sells at reduced price, if at all. It is the fine flavor in butter that all seek after.

The farmer who has a milk check coming in every month will tell you that it is a great aid in producing sound and natural sleep, for it relieves the worry of how to meet the current expense bills for the household.

Are you testing those cows you are now milking? Do you know the "star boarder?" You wouldn't put up with a hired hand who failed to earn you a profit on his wages; then why do you persist in throwing away valuable feed on an unprofitable cow?

Many farmers who are following dairying and patronize the skimming station place little if any value on the skim milk. A dairyman with a separator on his farm will prove to you the skim milk has a value of from 20 to 30 cents per hundred pounds.

If you are in the dairy business to stay, there is more than one reason for raising your own calves. You can not only develop the best milking strains in this way, but you can be more sure of having quiet and gentle cows.

The "Farmers' Friend" is a new monthly journal launched in February at Allegan, Mich. It is filled with sensible farm literature, but we abhor the presence in its advertising columns of the dilution, tin-can separators. Cut them out, brother.—Nebraksa Dairyman.

Horticulture.

HORTICULTURAL TALKS.

LATE PLANTING.—It is rather late to plant grape vines or raspberry plants; but it can be done successfully if the right plan is adopted. I have transplanted grape vines before now that had made a foot of growth. Dig them up with care, trim the roots as usual, pinch the vine back to a few eyes, plant carefully and shade the young shoots for a few days. A tub or pail of water is necessary to keep the roots of the vines in while out of the ground. Raspberry tips can be moved safely if treated in like manner. I have quite a number of the latter, and some of the former to set out yet. No rain for two weeks prevented my planting them sooner. Of course, such plants will not make as strong a growth as if set out at the proper time, but it is better than not to plant them at all.

This is the busy season of the nurseryman and fruit grower, nor has the vegetable gardener any spare time. There are times when a dozen things should be attended to at the same time, and one hardly knows which to do first. At least this is my fix, and being alone, I must do all myself.

CANNING STRAWBERRIES.—A subscriber recently came into possession of a strawberry patch. He says he has been told that they cannot be canned and asks how we do it so as to have them still to eat. I asked my daughter wherein the secret lies. She says there is none, that they are just as safely canned as any other fruit, and in the same way. Some add one-fourth pound of sugar to each quart when cooking them, and I think it best. In a few weeks we will have ripe fresh ones here.

SAWDUST FOR STRAWBERRIES.—How would it do? is asked. Nothing would be nicer but for the fact that it makes a place that just suits the June bug, the parent of the white grub, in which to lay her eggs. The grub is the worst enemy we have here. If the sawdust were stirred up and salt sown on pretty thick, it might destroy the young. I can get plenty of sawdust for the hauling of it, but do not avail myself of it.

WEATHER NOTES.—I am asked whether my weather diary is not quite a trouble. No, as I note the conditions down when I come to my meals, which are as regular as clock work—6 a. m., 12 m., and 6 p. m.

PRUNUS PISSARDI.—This is a purple leaved plum and is an ornamental tree. The young fruit is a real novelty. Instead of being green as is all other fruit when quite young, this is a very dark red. This is the first time it has set fruit here and I will watch it with considerable interest. The plum trees here all bloomed profusely, but I find that of the many varieties but few have set fruit. Peaches, as a rule, have not set nearly as full as was expected, but they will need some thinning.

INJURY TO CHICKENS FROM USING PARIS GREEN.—Mr. A. H. Bates asks: "Will spraying with Paris Green for the canker worm be dangerous to chickens running in the orchard?"

If much of the spray falls on the grass and the chickens feed on the grass, it might kill them, but if the ground is bare there will be no danger. Another question of the same character is: Will the arsenite emulsions kill the canker if applied? Yes, they will keep all manner of insects from feeding on the foliage.

Bluffton, Mo. SAMUEL MILLER.

MY WINTER GARDEN IN FLORIDA.

Editor RURAL WORLD: I have a winter home in West Florida, on St. Andrew's Bay. The soil, if it deserves the name, is yellow sand. I keep on my veranda, year after year, cracker boxes supported by empty condensed milk cans, to keep the floor from rotting. These boxes contain a compost of decayed leaves, black muck from the ti-ties, manure and sand. They are on the south and east side of the house, and are sheltered from the north and west winds.

We arrived here on December 7, 1900, and before unstrapping my trunk I planted onion sets, lettuce and radishes in these boxes, and in the open ground, on the day of our arrival. In an incredibly short time the onions were peeping up, and radishes and lettuce growing. There is an occasional slight freeze and frost in this latitude, and when it is expected the boxes are covered with carpet or gunny sacks. If the ground is frozen it is thawed out with water from the well and little harm follows. In early January we commenced pulling the crisp, tender onions, and until we left, the last of April, these boxes supplied daily a salad of tender crisp lettuce and radishes for our table. We pulled out the onions to make room for lettuce, and by the time they were pulled there were plenty in the open ground.

As soon as we could after our arrival, we purchased a few fowls which are kept in a small house. To them are fed the roots and tops of onions and radishes, cut up fine with the shears; also burned oyster shells, etc. Oats are raked into the sand and the fowls are encouraged to scratch. In a short time the yellow sand has become black with the droppings, which is a very valuable fertilizer. When a radish is pulled or a lettuce plant is removed, a little of this rich dirt from the chicken coop is put in, and a radish seed is planted there, or a lettuce plant transplanted. In this way every square inch of the soil in the boxes is kept continually producing.

During April we had turnips and Irish potatoes of our own raising. Everything that grows in Florida soil is sweet and of fine flavor. When we left the last of April, bush beans were nearly large enough to use. An unusual frost in April cut down some watermelons and squashes; those in low ground suffering most.

TREES AND VINES IN MY GARDEN—First and foremost, head and shoulders above everything else, is the scuppernong grape. All it asks for is a flat lattice frame raised from the ground, a little higher than one's head, and it will do its level best to spread over the county. Bear? Yes, bushels of grapes. It is never killed by frost, for it never leafs out until all danger has passed. It doesn't ask for animal fertilizer, but will give thanks for burned oyster shells and decayed leaves. I have rows of grape vines on each side of a walk, that have been planted eight years. They came from the Agricultural Department at Washington, D. C. They leaf out very nicely every spring, but neither grow nor bear. I have fed them everything, manure, bones, decayed leaves, burned oyster shells, and chopped up rotten roots of palmetto. Nothing suits their appetite. The Niagara does the best of any of the grapes that thrive at the North. I have seen one Delaware, planted at the north side of a building and trained to it, that had made great growth and bore large crops of fruit.

Honeysuckles with deep red bloom, that look as if covered with red flannel, and variegated ones of pink, white and yellow, are at home in the sand. At the corner of the veranda is one bearing white flowers that turn to yellow, and that grows faster than Jonah's gourd, winding in and out, through the open work at the top of the veranda. A little farther on is a Cherokee rose, with its shining green leaves. It bears large, single white bloom. A yellow Jessamine has possession of another corner of the veranda, and has ambition to climb to the top of Eifel's tower if permitted.

TREES.—The Lord may be able to make a better tree for shade than the umbrella, but I very much doubt if He ever has. Stand under it in a hard rain and you have a perfect roof, shingled with leaves and bloom, resembling the lilac in color and shape. It will protect you from the sun, and not let a ray fall on your head. Horses and cattle prefer these trees to hay.

Peach trees thrive and bear well, and are only excelled by the nectarines. If they have any enemies I have never heard of them. I have hunted for borers, but could never find any. Whether they are burned by the hot sand around their roots, or the moths that lay their eggs are caught by birds or hens, I am not able to say. In my tenant's lot adjoining are nine peach trees, and his hens live under them. I pity the fate of a poor moth that would venture there. The surface of that lot is bare and white as the beach; no green leaf is ever permitted to grow. A neighbor told the writer that his hens would eat the shingles off his roof. A salad should be provided for them by sowing rye, oats or Bermuda grass. Mulberries furnish food for fowls and birds four mouths in the year, and should be planted extensively both north and south. I have two varieties, one yielding white fruit, the other black.

One of my Burbank plums had died and I held a coroner's inquest over it. Dug it up and found that it was completely girdled. I went to a live tree and spread down a carpet and went to investigating. I found just beneath the sand a thriving colony of small yellow worms or grubs that had completely eaten away the bark in places. I cooked them with boiling water. As a stimulant I gave burned oyster shells and ashes. For a bath I made a solution of gold dust washing powder, dissolved in boiling water, and put in a small quantity of kerosene and washed the tree thoroughly to the ends of its branches, as this tree heads low. This was done in January. It blooms late, in whirls around the branches. Before the leaves and the bloom did not all open till the last of April. The Kelsey plum was doing well; also Mariannas.

The LaConte pears were planted largely in this locality, and for awhile were thrifty and bore heavy crops of fruit; but of late have been attacked with blight and look as if they had been struck by a cyclone. The Keiffers appeared to be immune against it, but this spring I noticed twig blight on them.

Oranges were not injured last winter by freezing, but bloomed and were very thrifty. Camphor and olive trees were doing well.

I wish some one would teach me how to grow figs. Mine die back every summer during drouths.

Peoria Co., Ill. MRS. L. HARRISON.

AN OKLAHOMA LETTER.

Editor RURAL WORLD: Let me tell your readers something about this country, as I promised in my last, which was also my first, letter to the RURAL WORLD.

We live in that portion of Oklahoma known as the "Poll," or the Pottawattomie country. It is largely a timbered section. Among the varieties of timber are post oak, black jack, hickory, walnut, pecan, elm, red bud, cottonwood and ash.

We have a variety of soils. On our quarter section we have four different kinds, red and white sandy soils, black loamy and a black waxy soil, all underlaid with a clay subsoil.

Fruits of all kinds do well here. On our uncultivated bottom land are many wild strawberry plants. Wild plums, both tree and sand varieties, are plentiful and of very good size and flavor. There is also a bush found on the white sandy soil that grows from six inches to four feet tall and which bears a small fruit that some think is a cross between the plum and cherry. The fruit is fine for pies and jelly.

There are lots of wild grapes of the winter and sand varieties. Tame grapes are grown extensively here. They are usually planted on the white sandy soil which seems to be perfectly adapted to their culture. Vineyardists are making a good profit on wine which sells readily for $1 a gallon. The Germans living here are, for the most part, engaged in this business, and they certainly know how to make it pay.

We are becoming very much interested in horticulture since getting into a home of our own, where we can freely put into practice the knowledge gained from eight years of study of the dear old RURAL WORLD. There was a small orchard on the place when we came here, but we found it in bad condition; so the "gude mon" turned horticulturist and pruned the trees, dug for borers, and sent to Stark Bros. for a bill of trees sufficient to replace those that had died. He followed directions for planting sent with the trees, and every tree is living and growing nicely.

We want to plant an apple orchard this fall. Will Judge Miller please tell us what varieties will be the most profitable to plant in a ten-acre orchard? You see we value his advice above that from any horticulturist we know, because he has had long and varied experience in that line. He is wide-awake and practical and we always read his letters with great interest and much benefit. We quote him about as much as some preachers, Bro. Heaton, do Acts 2-28. Long may he live to preach the gospel of horticulture to an orchardless and fruit-starved people; and may the seed fall in good and honest hearts, and may they be constrained to plant orchards according as he has said, that will bring forth much fruit. MRS. "A. GREENER."

Cleveland Co., Okla.

LAFAYETTE COUNTY, MO., MELANGE.

Editor RURAL WORLD: The time of year of greatest expectation has again rolled around, and while in the midst of the expectations we are already realizing some disappointments. The peaches, plums and pears so promising in bloom are cut short by two late frosts to at least half; the apple crop has promised but little, should all go well from this time on the crop will not be over one-fourth. Blackberries, raspberries and grapes from present appearance, will be very plentiful.

We have had a very late cold spring. Everything tardy in putting out, and the weather is still cool with continued northwest winds. Wheat is uninjured and fine; pastures are now good; ground is dry and needing rain.

Four years ago I set out a large orchard of every kind of fruit and berry, several varieties of each, making my work a kind of experiment, as I was a novice at the start. So in this as in future contributions to the RURAL WORLD, I shall give my own experience, not claiming that my way in doing things is the very best way, and that all others are wrong, but simply the way that suits me best and has proved most satisfactory to me, and which I expect to follow until convinced by experience that some other way is better.

Much of what I am doing I have gathered from the RURAL WORLD and other horticultural papers, and some I put on trial without advice. I know of no better way of benefiting our fellow-farmers than by telling of our experiments in what we are doing; exchanging experiences and telling of the way we do and the most satisfactory results obtained.

I must regret to say anything adverse to the noble Elberta peach, yet my experience with it is that it is a shy bearer and not of the hardiest. I have many varieties, would-be-rivals and impossible competitors. In fruit it is without a peer. J. L. MARSHALL.

MOLE BEANS.

Editor RURAL WORLD: A few years ago the ground moles were doing a great deal of damage to a part of my crop. One day an old colored man, who formerly belonged to my grand uncle (who once owned our place), came over and I told him the damage they were doing, and asked him if he knew any way to get rid of them. He asked me why I did not set out some mole beans, saying there used to be some in the garden. He went to the garden and showed me what I had always considered to be a kind of weed, saying "ole master" always called them mole beans, and the moles will never come near them.

I set out a few plants where the moles were the worst, and I am satisfied that they did good, but the season was late, and as I had only a few plants it was not a fair test. I forgot all about the mole beans until last spring, when I had my garden in new ground and the moles were terrible. I happened to think of the mole beans and got some plants from the old garden place. Soon after setting them out I could plainly see an improvement and in three or four weeks I was nearly rid of them in the garden, and was not bothered with them there any more.

The plants I had in my garden were very prolific and I saved a lot of seed. Should any of your readers desire to try them and will send me a self-addressed stamped envelope, I will be glad to send them a few seed—about two dozen. They should be planted as soon as danger of frost is over. They can be planted either where they are to remain, two or three in a hill, or in beds, and be transplanted as wanted. They are very easy to grow, requiring only a little water, and if the sun is very hot, to be shaded two or three days. If planted in hills they should be thinned to one plant, when three or four inches high. The plants pulled out can be set in another place. S. MEARES.

Dunklin Co., N. C.

Conscious of the danger there is in introducing plants of unknown characteristics to a region where they may prove to be troublesome weeds, we submitted the sample of seeds sent us by Mr. Meares to the plant experts at the Missouri Botanical Garden for identification. Mr. H. C. Irish writes as follows:

"The seed which you sent me some time ago has been identified by Messrs. Norton and Lettermann as a species of Senna (Cassia Tora), an annual plant native of the South Central United States. I have been unable to find any published record of its being called "mole bean" or having any influence in keeping moles from the ground where the plant grows. It seems to be of interest only to the botanist."

It is rather late for our readers to avail themselves of Mr. Meares' offer to send seeds for this season's planting.

THE CASTOR OIL PLANT AND THE MOSQUITO.

The following interesting contribution to a subject already occasionally touched upon in these pages comes to us from India. A correspondent of the Madras "Mail" observes that the suggestion to use the castor oil plant as being distasteful to the mosquito is by no means new.

"It has long been the custom in Egypt to grow the plant about houses in order to drive the insects away. Many years ago it was suggested in 'Insect Life' that, for towns, a good plan is to have growing plants of Palma christi in pots and bring them into the house for a day or two at a time, but not to keep them too long in the shade, as the plant needs sun. It is believed that the mosquitoes are killed by a poison that they find on the under surface of the leaf, but at the same time it has been observed that if leaves of the castor plant are placed about a room that swarms with mosquitoes they will disappear without leaving any dead ones lying about. It is strange that though the castor oil plant is common in many parts of this country the natives do not use it either fresh or in the form of a fumigant for the destruction or dispersion of the noxious insect. The leaves of Ocymum scanctum are commonly used as a fumigant for the purpose in Malabar. Besides the scientific methods now advocated for the destruction of the mosquito by destroying it in its earlier larvae stage, one indirect way of getting rid of it is by getting rid of rank vegetation about houses. Mosquitoes seek the shelter of rank vegetation for the moisture and shade afforded. They cannot endure the direct rays of the sun, and furthermore, in open spaces they are not likely to obtain food to sustain life. The present writer has more than once of late come in contact with mosquitoes on the seabeach at Calicut. He mentioned this fact to friends and found that they had also noticed it. Mosquitoes in such a place were not known formerly and their presence is doubtless to be attributed to the fact that two rows of casurina trees have been planted along the beach road."—American Garden.

As the castor bean plant is quite ornamental, it might well find a place in gardens and lawns, and particularly so if it has characteristics which drive away the troublesome mosquito.

THE APPLE BLOSSOM.

Its Origin and Development.

From a Paper by Prof. E. S. Goff, Wisconsin Agricultural College, Read at the Illinois Horticultural Meeting.

DEVELOPMENT OF THE FRUIT SPUR.—When a leaf-bud pushes into growth in spring, a leaf-bearing shoot is formed. In the axil of each leaf a bud is commonly formed, which continues to slowly expand during the season. In due time the leaves fall and we have a reddish brown shoot with a plump terminal bud and several flattish side buds that lie very close to the shoot. The next spring the terminal bud of this shoot almost always opens first and continues the growth of the shoot. Several of the flattish buds below usually open also. Those nearest the terminal bud very often make considerable growth, forming more or less conspicuous branches. As we recede from the terminal bud the branches make less and less growth, and some of the lower ones form only short, blunt shoots, surrounded with tufts of leaves. In these short, blunt shoots the conditions are most favorable for forming embryo flowers, for they do not receive sap enough to enable them to grow, while their numerous leaves prepare plenty of food, provided they receive light enough. These short shoots then become the fruit spurs. The bud on these shoots is now in its second year, and it should form embryo flowers, if the tree is of bearing age. The next spring, the third spring of the bud's life, it should flower, and we may generally expect the finest apples from these young fruit spurs. As we have seen, they do not always flower until later. When such a bud opens flowers its growing point perishes. If the bud is vigorous, the dying of the growing point causes a bud to push out just below the flower cluster, which continues the life of the spur. This side bud appears to form about the time the embryo flowers form; that is, the season before it expands. It commonly forms in the apple within the bud scales, where it is protected from the weather during the winter. Sometimes two side buds form. When the flower expands in spring this side bud also expands, and if the growth of the tree is normal, it commonly forms only a tuft of leaves. It may or may not form embryo flowers the first year of its life. If the growth is abnormal, due to excessive pruning, too much fertility, or water, it may push into a shoot and then it may be years before it flowers. If the growth continues normal, the spurs branch as often as they flower, and thus we have a much branched twig, shaped a little like a deer's horn. The fruit spurs furnish most of the apples on old bearing trees, but I am of the opinion that the older and most branched fruit spurs generally furnish undersized apples.

ANNUAL FLOWER BUDS.—A statement has recently been made in certain horticultural works to the effect that the same fruit spur, or the same branchlet of a compound fruit spur does not commonly bear fruit two years in succession. I have investigated the past autumn in regard to the formation of flowers on fruit spurs and find that in our station orchard, in a number of varieties, the side-bud of the same fruit spur that bloomed last spring has formed embryo flowers in a number of varieties. It would appear, therefore, that in some varieties the same fruit spur may fruit annually. This may explain the well-known fact that some varieties bear annually, while others bear only biennially. Indeed, this is almost the only explanation for continuous annual fruitage, for in favorable season for flower-formation almost all of the buds growing from wood more than one year old form flowers.

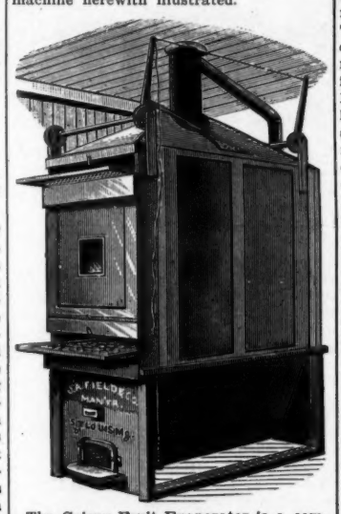
The cause of occasional excessive fruit crops is intimated in our last sentence. When the seasonal conditions all chance to be favorable for the formation of flowers, all of the healthy reserve buds and many of the buds formed that year form embryo flowers. That is to say, all of the one-year-old buds, all of the two-year-old and all of the three-year-old buds, and many older ones that are still healthy become flower buds, with some of the buds not yet a year old. Thus we may have what amounts to two or more ordinary crops of flowers in one year. Of course, the outcome of this heavy flower crop will depend upon the conditions of the succeeding season, for we should remember that two seasons are always concerned in an apple crop.

The causes of the excessive fruit crop explain why such a crop is always followed by a scanty one. There are no reserve buds. Only the buds formed the preceding season are available, and the draft on the tree necessary to develop so many apples prevents many of these from forming flowers, even if they are of the annual flowering varieties. It does not follow that an excessive apple crop permanently damages the tree, for it is probably the reserve food of the tree that is chiefly drawn upon for flowers and fruit production. The excessive crop does certainly tend, however, to exhaust the soil rapidly.

FORECASTING THE APPLE CROP.—To what extent may we anticipate the apple crop? Without a microscopic examination we can only give an opinion as to the yield of fruit we may expect next year. The buds are a guide to some extent, but not an accurate one. Round, plump buds on the fruit spurs generally indicate embryo flowers, but the flower buds in some varieties are so much smaller than they are in others that they are almost certain to deceive one who has not made a careful study of the subject. A sharp razor and a high-power pocket lens, with a little experience will enable one to say positively whether a given bud does or does not contain flowers, but without these helps little positive information can be gained.

EVAPORATED FRUITS.

As the fruit season is now near at hand it will be well to look into the matter of perfectly preserving all kinds of fruit for commercial purposes or home use. There is always a market for evaporated berries, apples, peaches, plums, etc., and a good price for a fine quality of these products is easily obtainable in ready cash. The market is glutted with poor stuff throughout the year, but with good stock to begin with and the process of evaporation properly conducted, large sales are quickly made. For home use, also, it will well repay for the original cost of the machine herewith illustrated.



The Geiger Fruit Evaporator is a combined evaporator and bleacher and is the only one obtainable. It possesses many advantages and these are secured by letters patent. It is made in four sizes, numbers one and two being intended for use on cook stoves and having a pipe connecting with the stove pipe, thus creating a draft which carries the evaporated dampness up the chimney. The bleaching combination may or may not be used, just as the operator may desire, but certain fruits have a better appearance and will bring a much higher price when their color is nearly white. The capacity of these machines is from five bushels of apples each twenty-four hours for the smallest size to twenty-five bushels for the largest.

Manufactured by the N. M. Field Mfg. Co., Eighth and Howard streets, St. Louis, whose productions have been so well and favorably known for a quarter of a century. This evaporator can be depended on in every respect. Descriptive circulars and full particulars will be sent on request. Address as above.

The Apiary.

LOCATION OF BEE HIVES.

The position that the hives should occupy in a yard is quite a serious question, for if they are put too near a highway or too near an enclosure occupied by live stock, very serious consequences may result. Yet there is no doubt that bees become accustomed to the passing of people and vehicles, and it is certain that the bees of an apiary located near a busy thoroughfare are less inclined to molest the passers-by than those that have always been in a secluded spot, says C. P. Dadant in "Prairie Farmer." But a hive should not, under any consideration, be placed where the bees can see a horse hitched to a post, without taking flight from the hive entrance. You may have bees in such a spot for years without accident, but you do not know what day a valuable animal may be damaged, spoiled, nay, even killed by them. If there is a thick hedge or a clump of bushes, or a board wall between the hive and the hitching post, even though in close proximity, the spot may be considered comparatively safe, provided the place itself is a busy thoroughfare where vehicles are passing and repassing all the time. But a colony accustomed to quietude will readily become offended at a noise or a disturbance with which the bees are not familiar.

We have our apiary near a pasture and in this pasture the cows and horses roam at will, sometimes standing or grazing within a few feet of some of the hives. The bees never molested them. Yet, before this land was turned to pasture, when it was enclosed and stock not permitted to enter, the bees would very readily sting any animal which came within about the same distance of the hives as they now do safely. They were not accustomed to seeing them there and took offense at their appearance. Again, this same apiary is traversed by a lane through which we drive regulary, the lane being sheltered from the direct sight of bees by bushes and trees which shade it well. The bees have never molested anyone in this lane. Yet, we should be very much afraid to stop there any considerable length of time with a hitched horse, because this would be an unusual action and the bees would soon discern it.

In placing the hives, we would as much as possible face them towards the south, and would aim to have some good shelter on the north or northwest side. We would also want them, if possible, in the shade of some trees. The best position is far enough under a tree to keep out the noon rays of the sun in summer and yet permit the same sun to shine freely over the hive when it has but little force during the short days of the year. If no shade is to be had, an artificial shelter may be made from a few boards nailed together, in the shape of a roof. This not only keeps the heat of the sun from the hive, but protects the wood and makes the hive last many times longer than it would if the alternate action of rain, sun, heat and cold was permitted to work upon it.

THE DRONE BEE.

The drone can easily be distinguished from the queen or worker bees, says the "Kansas Farmer." The body is hardly as long as that of the queen, but much thicker. The drone is not provided with baskets on his legs in which to carry pollen, neither has he a tongue suitable to gather honey from flowers. If he was left to depend on himself for a living he would certainly starve to death. He appears to be entirely exempt from labor, and his existence depends upon the colony. The young are ready to leave the hive when they are ten or twelve days old, and this they do only on pleasant days, about the middle of the day, and from that to two or three o'clock p. m. They sally forth at the same time of day that the young queens do, and perform the only work for which they are intended, that of fertilizing the queens. From the most careful observations we have, they will often fly long distances, as much as two miles or more. But their return to the hive is seldom deferred over an hour. To give an exact account of the length of time the drones will live is impossible, as they seldom get leave to live more than two or three months, or during the honey season, at the end of which time the bees will destroy them. The only way in which they can be retained is to keep them in a queenless colony. If the bees are deprived of their queen, or if without a laying queen, they will retain their drones, and have been known to keep them during the entire winter. Drones can be reared out of season by stimulating the colony on heavy feeding, and in order to continue raising queens during the entire summer this has to be resorted to, especially if the honey season is of short duration. Drones are not so evenly and distinctly marked as the worker bees. The Italian drones are of all shades, from yellow to almost black. If we were to judge the purity of Italian bees by the color of the drones we would pronounce them hybrids. Hence we have no way to a certainty in testing the purity of Italian drones. But in the worker bee we have and can tell to a certainty by the yellow bands encircling the body. Drones draw heavily on the stores of honey, and contrivances are used to destroy them. Since the use of foundation, it is an easy matter to regulate the number of drones in a colony of bees. If the comb in a colony is all worker comb they can not raise any drones, hence the number of drones may be regulated by the amount of drone comb given them.

BITS FROM BUZZDOM.

Clipped wings will not prevent swarms from going to the woods. Neither will entrance guards prevent it.

If the queen bee be clipped or kept in the hive by an entrance guard, the workers will kill her.

Alfalfa, alsike and buckwheat may be considered standard crops for bees. Sweet clover is also a good crop for honey. These crops are valuable for forage, and this ought to increase their planting. Surely, every farmer, who has a number of colonies of bees, will find these crops double yielders, giving both honey for the bees and forage or grain for other uses, writes Ella Henson in the "N. Y. Farmer."

Extracted honey will lose flavor quicker than honey left longer on the hives.

Moth eggs call for sulphur or bisulphide of carbon. The sulphur will not kill the eggs, but the bisulphide will. Either will be effective after the moth passes the egg stage.

Grafting or inoculating larvae in the queen cells was practiced first by a German apiarist, Meuring, in 1866. He was first, also, to use comb foundation.

Honey shippers will be surprised to learn that the Grand Trunk Railway, in Canada, has posted a notice that comb honey will not be accepted as freight, because it is so easily broken. The express companies continue to ship comb honey, although they certainly bang it around quite as carelessly as do the freight handlers.

No apiarist has yet come to earth who can make his sections average just a pound of honey. Last season I weighed every section I sold, and not a single one in all the number weighed just a pound. They are sized to average a pound in weight, but the bees do not care for accuracy in this matter. When they get through with a section, they leave it, whether the unfilled cells are one, or five, or twenty.

Why do bees leave unfilled cells in a comb? Will some scientific apiarist tell us why?

Should sections be sold by the weight or by the piece? Perhaps the apiarist would profit most by selling by weight, for then, if the sections be only partially filled, he gets honey price for the wood. If he sells by the piece, he throws in the wood, whether the sections be full or short of honey.

I always sell by the piece, grading the sections carefully, and asking a higher price for those that are completely filled, and lower prices for those that are more or less short. My customers like this plan, and certainly it returns me more money than I could get if selling by weight.

BEE PARALYSIS.—What is known as bee paralysis is not very common, but we sometimes see reports of it having appeared, and usually the statement is followed by the assertion that the cause and the cure of it are alike not known or understood. A writer to the Australian "Bee Keeper" says he found it in a colony, and he mixed a teaspoonful of sulphur with three teaspoonfuls of honey, which he made thin by heating, raised the cover and turned this on the top of the frames so that it would run down on the combs. Did not smoke them because he did not want to have them fill themselves with honey from the comb. This was done on Thursday, about 7 p. m. Examined them at 3 p. m. Saturday, and found about twenty-five dying with the disease. Gave them a second dose same as the first, and examined again ten days after, and again at time of writing, six weeks after giving the first dose, and found no signs of the disease. The remedy is so simple and inexpensive that anyone might try it.

SURPLUS CASES.—There is the right time and the wrong time to put on the surplus cases. If these are adjusted on the brood department of the hive too early in the season there is danger that brood rearing may be retarded at the very time it should be encouraged most. The additional room given by the empty cases which must be warmed by the bees, if added before the bees need the room, can in no case be of any service to the bees or to the apiarist. Make it a rule to watch the progress the bees are making when the honey harvest has fairly begun and as soon as the strongest colonies have their brood departments fairly well filled with brood and honey, the surplus cases can go on the hives at once and others later on as they are needed. Not a colony of bees in the apiary should be permitted to lose a single day on account of lack of room to store all the nectar they can bring to the hive.—Denver Field and Farm.

REMEDY FOR RHEUMATISM.—It is said that a certain lord found so much benefit from the use of the following mixture for rheumatism that he paid his physician £300 for the privilege of making it generally known, Pro Bono Publico.

Recipe: Sulphur 1 oz., Cream of Tartar 1 oz., Rhubarb ½ oz., Gum Guiacum 1 drachm, Honey 16 oz.

A tablespoonful night and morning in a tumblerful of white wine and hot water.

This mixture is called "Chelsea Pensioner" and a man of my acquaintance having tried the same has been benefited. —John Browning, Woodchester, in B. B. J.

Live Stock.

January 28 to 31, 1902—Sotham's annual Criterion Sale, at Kansas City.

BREEDING IMMATURE ANIMALS.

Too great importance cannot be attached to the health of the herd. If a herd of high grades or pure bred cattle is the aim, select a bull from a herd that is known for vigor. Then avoid that rock on which has been wrecked the hopes of so many breeders, especially the inexperienced ones—that of breeding immature animals and breeding from immature animals.

The result is weaklings that have to be nurtured with a care that is never financially recompensed, and a herd is established that never produces prize winners or record-beaters. The wish to grow rapidly into a desirable herd too often tempts the young breeder to breed the heifer at a very early age. And when in a few years his herd is not noted for quick-maturing, heavy young cattle, he declares fine stock breeding a failure. Better make haste slowly.

If at this season you are tempted to let your ambition for a big herd override your judgment, and are going to breed some young heifers, ponder well the consequences. A properly matured cow, that has been permitted to develop vigorously, will have a long life of usefulness in the herd, and the breeder can afford to wait. He cannot afford to breed recklessly. Common sense is many a man's fortune.

NEBRASKA LIVE STOCK GROWERS.

Editor RURAL WORLD: I attended the annual meeting of the Western Nebraska Live Stock Growers' Association May 13 and 14 at Alliance. Three hundred members were present the first day and about fifty more the last day of the session. It was a very enthusiastic convention and the members agreed that everything indicates a remarkably prosperous season for cattlemen in this state.

The report of Secretary Van Boskirk showed the society to be in good condition. S. P. DeLatour, of Hutchinson, was elected president; A. M. Modisett, of Rushville, vice president, and W. H. Corbin, of Alliance, secretary.

Governor Savage, of Nebraska; United States Senator Joseph Millard and W. J. C. Kenyon, general manager of the Union Stock Yards at Omaha, were among the prominent people present who were not members. All addressed the convention and left a very pleasant impression. Prof. Bennett, of the State University, talked on "Beef Cattle." Prof. Peters, State Bacteriologist, spoke on "Advancement Made in Combating Contagious Diseases;" "Education for Stockmen's Boys" was the theme discussed by E. Von Forell, regent of the State University. "This Year's Calf in Next Year's Refrigerator," was discussed by H. F. McIntosh, editor of the "Nebraska Farmer." The closing hours of the convention were made pleasant by an illustrated stereopticon lecture on "Animal Diseases." The evening of the last day a ball and informal banquet were tendered the delegates by the citizens of Alliance.

BLACKLEG VACCINATION.—The discussions started by the speeches were peculiarly instructive. For instance, Dr. Peters, while talking on the manner of combating diseases in stock, was asked numerous questions bearing on the subject by the members. One member wanted to know how he was to determine when he had injected vaccine into stock for blackleg or other diseases whether the vaccination had been a success. He said he understood that he could take the temperature of the animal, but with a vast herd this was impracticable and practically impossible. Dr. Peters said that if an animal was properly vaccinated a puff or enlargement of the skin about as large as two silver dollars would appear within a day or so at the point where the vaccine had been injected, and that in this manner the question could be determined accurately and quickly. Again, a member wanted to know how long an animal was immuned from contagious diseases after being successfully vaccinated. The Doctor said six months. Another important thing brought out by the Doctor's discussion was the fact that double vaccination was not injurious; in other words, if the stock man was in doubt as to a vaccination having "taken" he could safely vaccinate again without danger of injury to the animal. Dr. Peters thought about eight per cent of all herds of stock were naturally immune from contagious diseases, the same as human beings, and the vaccination would not take in such animals any more than vaccination will always take in all people.

THE FORAGE QUESTION.—The question of more forage for the range in Nebraska was an attractive theme for discussion. It was admitted that the herds on the Nebraska range are very numerous at present, probably 30 per cent heavier than usual and likely to remain so for some time. Some members feared that the native grass would be exhausted and that the profits of the business would be lessened by the necessity for buying forage. The consensus of opinion, however, seemed to be that this alarming situation was unlikely in Nebraska because of the remarkably fertile range and because of the very heavy corn acreage already in sight. The indications are that more than 8,000,000 acres will be planted to corn in Nebraska this year and that will mean a yield of more than 300,000,000 bushels. In that event corn will be so cheap that other lines of stock feed will be reduced in price and the stock grower will be assured of cheap food.

The question of the price of stock for the next year or so was discussed by W. R. Corbin of Alliance, secretary of the association and one of the oldest stock-growers in the business—a man who has made a fortune at it in the past 20 years. He was firmly of the opinion that in spite of the increased numbers of cattle, sheep and hogs in Nebraska and the West generally, the price of the same was not likely to decline in the next two years. He thought the price would be held up and vast sums of money made by the men in the business.

AT THE STOCK YARDS.—General Manager Kenyon of the Omaha Union Stock Yards said his company was prepared to handle all this vast output of stock regardless of the increase. He declared that the recent completion of the handsome pavilion at the yards for the handling and sale of blooded stock was merely the beginning of a splendid system to be introduced by the Omaha Stock Yards Company for the convenience of the stock-growers in the handling of their live stock. The regular sales of fine stock at the yards, he said, indicated the extraordinary interest of the western stock grower in the improvement of his stock and he expects the price of this blooded stock to bring even higher prices than it has been commanding lately at the yards. These sales lately have been attended by stock breeders from all sections of the country and the prices for the registered stock of exceptionally fine quality had been extraordinarily high It was the expressed opinion of most of the delegates that the solution of the overcrowded range in Nebraska would in time be found in the increased quality of the stock grown for market and a decreased output.

GARNETT C. PORTER.

Omaha, Neb.

H. A. BARBER, Windsor, Mo., has a herd of Shorthorns that was visited a few days ago by our field man and found in good shape, with a splendid lot of calves on hand. That Mr. Barber is a cattleman, the quality of his cattle and the condition they are in will show, and is the best proof of his judgment. He has recently added a new herd bull in Young Dainty 154039, calved July 2, 1898. He is red in color, was sired by Dainty Chief 122623; dam Duchess Peri 6th, by 57th Duke of Airdrie 111559, tracing to imp. Peri, by Grand Duke. This is one of the finest styled bulls it has ever been our pleasure to see. He has great finish, with plenty of quality, and he is one of the thickest meated bulls on the back we ever handled. He is a show bull and ought to make a splendid breeder; and from the class of cows he is bred to, we look for excellent results. Mr. Barber has a few young bulls for sale, and they can be bought right; look up his advertisement.

drooping ear, with a general dull expression of countenance, is an indication of defective nutrition and a lack of constitutional vigor."

These well defined characteristics of the head of a beef animal will lead one to conclude that the head aids one in forming an opinion in regard to the other parts of the system. If some good authority on the best conformation of the beef type is secured and the individuals of herd compared with this standard, beef growing will be more intelligently done.

THE DISCUSSION ON TUBERCULOSIS.

Prof. Thos. Shaw, of the Minnesota Agricultural College, takes issue with one of our leading live stock journals on the subject of tuberculosis in a series of articles which he sends to the RURAL WORLD. Following is the article No. 1:

I have noticed, almost with amazement, the strong things that have been implied and said reflecting upon the views and actions of veterinarians with reference to the tuberculin test of tuberculosis, and am at a loss to know whether their silence is to be attributed to meekness or cowardice. I have noticed with apprehension the rising of the tide of expressed opinion against the enforcement of the tuberculin test as applied to imported cattle. Not long ago it was not more than ankle deep, soon it was up to the waist, now it is up to the bridles of the horses and threatens to sweep all before it unless the specious, and, as I think, untenable logic of those who are advocating such a measure is met and answered. In my judgment the abolition of the tuberculin test on imported animals would be a mistake of the gravest character. Because of this conviction I deem it my duty to speak out, and in no uncertain way.

To a careless reader, the great question at issue is the admitting of imported cattle without the enforcement of the tuberculin test. It is on these lines avowedly that the discussion has been waged. But after all, that question is only an incident in the discussion. It is the battle ground, as it were, around which the discussion is being waged. The real question at issue is of far greater import. It involves the character of this most subtle disease as being an evil in our herds not greatly harmful or seriously harmful. It challenges the reliability of the tuberculin test; it has even raised the question of its being harmful. And if the contention of those who clamor for the abolition of the tuberculin test is successful, by parity of reasoning it will bring discredit on the value of the tuberculin test as a means of combating tuberculosis, from which it will not recover for years and years. Are those men who are clamoring thus prepared to assume so grave a responsibility? Are they quite willing that the next generation shall look back upon them as obstructors in the way of checking or trying to head off a disease that is preying upon our cattle to a greater extent, probably, than all other diseases combined? And they are putting themselves in this position for what? Simply that a few hundred animals may be imported into the country without subjecting these animals to the tuberculin test.

Suppose the Department of Agriculture yields and abolishes the test on such animals, what does it mean? It means that arguments on which the contention is based are conceded to be correct. It means that the Department concedes that tuberculosis is not a seriously harmful disease. It means that the tuberculin test is not reliable. It means that in many instances it is positively dangerous. It means that the government should fold its hands and shut its eyes and allow this most dangerously subtle disease to stalk through the land preying upon our herds; and all this to suit the convenience of a handful of men who are engaged in importing and exporting cattle into the United States.

Why would such action on the part of the government be so far-reaching? The answer to this question is not difficult.

If there is any one place more than another in which the tuberculin test ought to be applied at all, fair-minded men will concede that it ought to be on imported cattle, as the breeders of foreign cattle have no claims for special consideration on the part of our government. It follows, therefore, that, if the government should not impose the tuberculin test on any cattle coming into the country, it should not impose it at all. This would mean milkmen with tuberculous cows may go on without let or hindrance sending their milk into the towns and cities. If the test on imported cattle is abolished by the government, then tuberculous animals must have the right of way all over the United States. A man may have a herd of cattle 90 per cent of which are tuberculous. He may go on sending these animals into the herds of innocent purchasers, and the government dare not even try to check the evil. No state could then consistently pass a law enforcing the tuberculin test anywhere, or confining animals found tuberculous, for such action would be directly antagonistic to the action of the Department at Washington. Such action would give tuberculosis the right of way over all the United States. It would mean that all the "vets" in all the United States were nothing more than muffins, that on this question a handful of stockmen were wiser than they all.

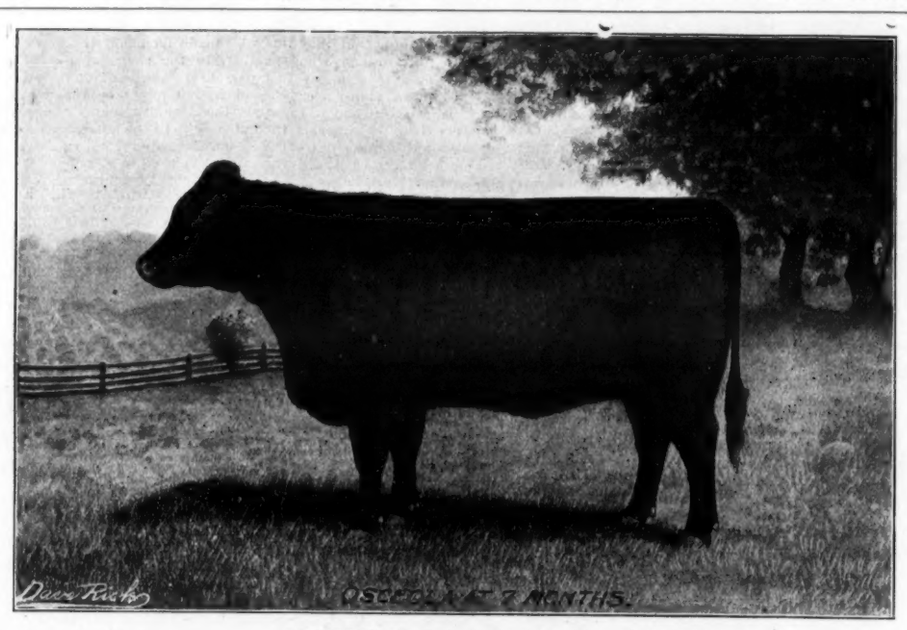
The Hon. John Dryden talks eloquently about educating the people on this question. Yes, such action on the part of our government as he is trying to bring about would educate them with a vengeance. It would say that tuberculosis is not a bad thing, it is so insignificant a malady that it is beneath the notice of the government. It would say to them that the tuberculin test is not reliable and that in many instances it works much harm. It would say to them, go on and buy and sell and distribute tuberculosis over the land. Rather a singular educational campaign for the government of this great republic to engage in.

I cannot close this paper without a word of reference to the character of the discussion. On the one hand it has been led by the journal referred to, supported by certain stockmen. On the other hand, it has been conducted by Dr. Salmon almost entirely alone. I must say the contrast and temper of the discussion as conducted by the two parties is very marked. On the one side is heated discussion and lame logic. On the other is calm, clear, logical reasoning. Notice the following manly statement made by Dr. Salmon: "I expect, in case any person questions any one of my assertions, to make said assertion good by the citation of evidence." The Doctor has certainly made a goodly number of assertions. They run counter to the views of those on the opposite side. Why has the correctness of none of these assertions been questioned?

That in some of the states the veterinarians have been extreme in the measures devised for the lessening of tuberculosis is certainly true. It is probably largely responsible for the wave of opposition to the tuberculin test that is now sweeping over the land. It seems to me, however, that to abolish the tuberculin test on imported animals would be no less extreme. One extreme is no justification for another opposite in character. The thing that is best under the circumstances is what ought to be done, regardless of antecedents or consequence.

THOMAS SHAW.

University of Minnesota.



PROPERTY OF J. J. LITTRELL, STURGEON, MO.

OSCEOLA.

The picture of the heifer shown on this page is a Scotch topped Young Mary. She is owned by J. J. Littrell, of Sturgeon, Mo. She was sired by the Scotch bull Lavender of Audrain 123244, dam Osa, by Victoria Baron 106859, running to imp. Young Mary, by Jupiter. Lavender of Audrain was of the noted Scotch Lavender family and was sired by Lavender Lad 119937, he by Scottish Archer, dam Lavender 46th, by Dunblane.

Victoria Baron, of the Scotch Victoria family, that did such excellent service in Mr. Littrell's herd, and now the chief sire in S. P. Emmons' herd at Mexico, Mo., is without doubt one of the leading Scotch sires in the West. He is by imp. Burgomaster. The great Baron Victor is from this same family.

Osceola is a very promising heifer and she is surely well enough bred. She is a fair representative of Mr. Littrell's breeding. If any one of our readers wants a good bull, Mr. Littrell's herd is a good one to get it from, and Mr. L. is a pleasant man to do business with. His advantisement will be found elsewhere. Look it up.

A SERIES ON ANIMAL FORM.—I.

Farmers need to carefully study the forms of the different individuals of their herds. And there must also be most careful study of the individual bulls and cows of known merit. The breeders of standing realizing the importance of this educational factor in stock breeding are doing much by giving to farmers photo-engravings of their herd-headers and the best developed dams of the herd. But there is danger of the unskilled observer creating a false standard by regarding as important a general expression of symmetry or proportion that is pleasing to the eye, although it may not represent any of the qualities that render the animal valuable as a beef producer. The practical man will only be satisfied when beauty and utility are so blended that profit results.

THE HEAD.—One of the leading live stock authorities says: "The head should be small in proportion to the body; the frontal bone broad without coarseness; the forehead slightly concave from the prominence of the rim of the orbits; and the face gradually tapering from the eyes to the muzzle, which should be fine, with a well-developed nostril, which indicates an ample development of the air passages. The jaw should be clean and free from folds of skin, and there must be no superfluous flesh on other parts of the head and face to give the animal a heavy-headed appearance. These peculiarities in the head and face are an indication of fine bones in the general skeleton, and the qualities that are usually associated with them. The eye, when prominent, bright and clear, with a mild and gentle expression, is an indication of health, with a quiet disposition and good feeding quality. If the eye is dull and sunken, the capillary circulation will be defective, and the functions of nutrition imperfectly performed; and there will not only be a deficiency in the ability to fatten, but a lack of strength and constitutional vigor. A restless and wild expression of the eye indicates a predominance of nervous action and an unquiet disposition that is not compatible with good feeding quality.

The ear should be large, without coarseness and not drooping, but with sufficient action to give a pleasing expression. A

STOCK NOTES.

W. A. BETTRIDGE, Bell Air, Mo., has a small but select herd of Scotch Shorthorns headed by Baron Golddust 2d, by Baron Glocester 101657, by Commander 79556; dam Duchess of Glocester, by imp. Julius 56640. This herd is in fine shape.

M. A. AMICK, Calhoun, Mo., has a nice herd of Shorthorns, principally of Bates breeding, headed by the Scotch bull, Orange Duke 3d 158521, bred by Mr. W. P. Harned, and sired by Banker 110861; dam Orange Lady, by Scottish Lad 113723, tracing to imp. Orange Blossom, by Royal Duke of Glocester 20901. We will have more to say of this herd later.

THE TEBO LAWN HERD.—We had the pleasure of seeing the great Tebo Lawn herd of Shorthorns, the property of Col. G. M. Casey, Shawnee Mound, Mo. This is undoubtedly the grandest collection of high-class Shorthorns owned by one man in America, and we doubt if it can be surpassed in the world. Mr. E. M. Williams, the manager, and Mr. John Rutlidge, the head herdsman, have the herd in fine shape. To describe this establishment and what is to be seen there, would take a book to do the subject justice, but we will have more to say of this herd later.

MESSRS. GENTRY BROS., proprietors of Cedar Vale Stock Farm, near Sedalia, Mo., and breeeders of high class Shorthorn cattle and Berkshire hogs, renew their advertisement for another year. The greater proportion of their herd of cattle is of the very best of Bates breeding, with a fine straight Scotch. The Bates families are Wildeyes, Barringtons and Waterloos, and the Scotch are represented by the Butterflies and Orange Blossoms. The principal breeding bulls are that grand old bull, Grand Duke of Hazelhurst 125404, and Waterloo Duke of Cedar Vale 133065. Grand Duke of Hazelhurst is a bull of great scale, with great depth of flesh, good finish and character, fine style, close to the ground and with a splendid top. He is red, was calved in 1896, and was sired by Airdrie Duke of Hazelhurst 117846; dam Waterloo Duchess 5th, by 31st Duke Airdrie, second dam imp. Waterloo Duchess 3d. Here is breeding of the very richest, and a most excellent sire, as his calves will show. The other bull, Waterloo Duke of Cedar Vale, also red in color, was sired by Victorious 121469; dam Waterloo Duchess 5th, by 31st Duke Airdrie, second dam imp. Waterloo Duchess 3d. This is a fine-styled bull of good character and finish, splendid top and bottom lines, extra crop and heart girth, splendid loin, good quarters and plenty of scale; he is undoubtedly a better bull than his half brother that won first for best bull to be sold at Kansas City show and sale last fall. He is producing some excellent calves; but he could not help being a good sire, being so good individually and bred as he is. The Messrs. Gentry Bros. have two grand herd bulls; and with the excellent lot of cows they have in their herd, it is not surprising they can produce prize winners. They have several young bulls for sale, as well as a number of cows and heifers, and here is an excellent place to get a start for a new herd or buy singly of either sex. Look up their advertisement and go and see their herd. You will never regret a visit to Cedar Vale Farm, and you can't find a more honorable firm to deal with than the Gentry Brothers.

REPRESENTATIVE SALES MADE BY EVANS-SNIDER-BUEL CO. IN KANSAS CITY.

L. A. Keys, Indian Territory, a load of light mixed Indian hogs at $5.62½.

W. G. Reamer, Indian Territory, a load of mixed hogs at $5.67½.

Pederson & Strait, Kansas, a load of mixed packers at $5.65.

Chris Smith, Kansas, a load of light hogs which sold at $5.62½.

J. W. Kimmell, Oklahoma, a load of mixed packers that sold well at $5.75.

Ripley Stock Co., Oklahoma, a load of light weight hogs at $5.55.

P. H. Boughman, Kansas, a load of light hogs at $5.65.

Commercial Bank, Indian Territory, a load of light Indian hogs that sold well at $5.50.

Fred Scott, Kansas, a load of mixed packers at $5.72½.

C. H. Bean, Kansas, a load of light weight 132-lbs. hogs that sold at $5.40.

P. Boughman, Kansas, a load of mixed packers at $5.77½.

W. H. Strother, Kansas, two cars of Western stocker cattle, average 678 lbs., and sold for the high price of $4.65.

C. W. Carter, Missouri, a car of native feeders that weighed 887 lbs. at $4.75.

Chris Smith, Kansas, six loads of steers which sold for the high price of $5.35.

J. W. Kimmell, Oklahoma, a car of fat steers on the market average 1,344 lbs. and sold at $5.10.

N. Ratcliffe, Missouri, a bunch of 1,017 lbs., fed, Panhandle steers, at $4.85.

H. M. Kidwell, Texas, 120 steers, mealfed, of fair quality, average 920 lbs., that sold at $4.55. Mr. Kidwell was well pleased with the sale and considers this market the natural and best one for feeders and handlers of stock in this section.

Wilson Bros., Texas, 113 meal-fed Texas steers, average 1,021 lbs., which sold at $4.50. These cattle were on feed less than 100 days, which speaks highly of Wilson Bros. as intelligent feeders. The sale was satisfactory. These gentlemen own and operate the Denton Oil Mill.

Jas. H. Gilliland, Kansas, cleaned up his winter feeding with two loads of little steers, which averaged 930 lbs. and sold at $4.30. Mr. Gilliland is a staunch supporter of this company and the Kansas City market. He has about 800 big steers that he will ship off the grass in June and July.

C. H. Bean, Kansas, six cars of Texas steers of his winter feeding. They averaged 1,009 lbs. and sold at $4.40. Mr. Bean will represent Evans-Snider-Buel Co. in Oklahoma and Indian Territory, with headquarters at Elgin, Kansas.

McCORMICK MAKES CHICAGO A SEAPORT.

The first cargo of Chicago-made agricultural machinery to go by all-water route from Chicago direct to Europe was shipped by the McCormick Harvesting Machine Co. on April 22nd, when the steamship "Northwestern", carrying a large cargo of McCormick machines, cleared from the port of Chicago bound for Liverpool, England. Following the steamer "Northwestern" the "Northman", also carrying a cargo of McCormick machines, cleared from the McCormick docks April 24th, bound for Hamburg, Germany. More than 144 carloads of McCormick machines were shipped on the two vessels.

To the McCormick Harvesting Machine Co. belongs the honor of opening Chicago as a seaport, and in making the initial shipments by steamers direct from the great manufacturing center of the West to European ports the McCormick Company has inaugurated a new epoch in the commercial world. Both in boldness and magnitude, as well as in far-reaching importance, this intrepid enterprise has no equal in the annals of American commerce, and is a splendid exemplification of the leadership of the McCormick Company, the largest harvesting machine manufacturers in the world

Horseman.

Secretary Geo. W. Lyon, of Peoria, Ill., advises us that the Peoria half-mile track will be in line this year as usual, and claims July 2 to 5 as the dates of the summer meeting at Lake View Driving Park.

Draft horses of good form sell almost according to weight, except that as weight increase, prices rise at a much greater ratio, so that extreme weights bring enormous prices if only the bone is satisfactory. Prices range from $125 to $300, with an occasional one higher, and with an increase of 100 per cent when matched in teams.

The St. Louis "Globe-Democrat" notes that "eighty-seven carriage horses were sold in New York the other day for an average of over $1,000 each." It is an interesting fact that more fine carriage horses have been bought, at better prices, in all of our great cities, since the horseless carriage became common, than ever before, in any equal period of time. The "going" of the horse would seem to have been indefinitely postponed.

"The market is strong—stronger in fact than since the days of inflated prices," writes "Hawley" in the "Kentucky Stock Farm." "The foreign demand is great, many of the best going to Vienna, where racing the light harness horse has reached such dimensions as to almost rival America. Speed, ability to win, and merit as a road horse are at a premium. The trotter is still king. He is typically American, and his future is the brightest. He is to-day in this age of prosperity an investment and a pleasure."

The time, by quarters, of the three most recent miles that constituted new trotting records was as follows: Nancy Hanks, .31, 1:02½, 1:32¾, 2:04; Alix, .30½, 1:03¾, 1:32¾, 2:03¾; The Abbot, .31¾, 1:02¼, 1:31¾, 2:03¼. It will be noticed that the only quarter as fast as a two-minute gait was the third quarter by The Abbot, in .29½, while his first quarter was considerably slower than that of either of the mares. This shows the advisabiltiy in such supreme tests of keeping as much as possible in reserve to finish with.

"It took several years for Sunol to reduce Maud S.'s record, and for Nancy Hanks to reduce Sunol's, and Alix to reduce Nancy Hanks'. The road to the two-minute mark will be a steady descent," says "Trotter and Pacer," "but there will be no precipices in it over which a horse can tumble and land at the coveted goal. It may not take ten years to attain it, but it will certainly take more than one. As The Abbot is the foremost horse in the line of advancement, we are glad that Mr. Scannell has determined to give him a chance."

The following mares have been bred to Red Chute, 2:24¼, at W. W. Estill's Elmwood Farm, Lexington, Ky.: Haughty (dam of Feliciana, 2:15), by Baron Wilkes; Conviction (sister to Acolyte), Bon Bon (dam by Guy Baron, 2:26), by Baron Wilkes; Maggie R. (dam of Futurity, 2:19, andTournament), by Arnold; Bucuba, by Bow Bells, dam Inlaid (dam of Alves, 2:09½), by Strathmore; Laurine, by Stamboul, dam Bon Bon, by Baron Wilkes; Katia Bells (dam of Sonata, trial 2:12), by Bow Bells, dam Fairwater, by Lord Russell.

The principal honors, as a show-ring trotter, at the Boston Horse Show were captured by Allie Nun, a previously obscure mare, by Mr. L. V. Harkness' Allie Wilkes, 2:15. It will be remembered that Allie Wilkes also sired the famous gelding Cadet, who, a few years ago, swept the boards in the high-stepping classes at New York, says the "Horse Review." Jupe, 2:07½, who holds the race record for trotting two-year-olds, 2:13¾, is another son of Allie Wilkes—who, apparently, now lacks but a Derby winner to clinch a formidable claim to the championship as an "all-purpose" sire.

The amount of service that a mature stallion is capable of performing in a single season without detriment either to himself or his offspring is an interesting question to breeders, especially such as are stallion owners, says the "Horse Breeder." Opinions differ widely upon this subject. Some claim that forty or fifty a year should be the limit for any stallion. Others contend that one hundred are none too many, provided they are evenly distributed over a season of five to seven months. Very few statistics bearing upon this subject have been published in this country.

The season is at hand when the word will go out from the different stables that certain horses are lame and the injury was caused while the horse was in his stall, etc.—never from any other cause or while on the track—and it will be remembered that these unfortunates never get hurt in the winter season, says "Western Horseman." It is a question that owners have tried to solve. It is also about this time when owners of "has beens" are on a high tension, as their favorites are being keyed up, to see just what their old idols can stand. They were told all through the long winter months by their paid veterinary that the animal is in perfect condition; that all his old ailments have been eradicated and he is as good as new, and no one would ever surmise that at one time he had a bowed tendon, spavin or any abnormal growth that interfered with his racing career in any way whatever. In the majority of cases a lame race horse is a burden to his owner and should be kept out of training stable, for just when he is called on to do his best he proves to be a disappointment.

Say, you farmers who have a good brood mare, don't forget to breed to a good horse this year, a good general purpose horse, one of nice style, pleasing gait and sufficient speed, says the "Twentieth Century." Never mind the cost, breed to something good. Horses are getting scarce again and by the time you raise a colt of this year's breeding it will be the most profitable thing on the farm. Don't get the idea into your head that there is nothing profitable on the farm but corn. There has not been big money in the horse, but he always pays for himself, and he is going to bring more money, and you can't get along on the farm without him. Don't let this season go by without breeding the best mare you have to the best horse you can find, and you won't regret it.

Of Harry, the prince of the New York police horses, which died recently, it is said: "He scorned such little tricks as 'shaking hands,' but enjoyed 'playing policeman.' Baldwin would dismount and walk away up the drive. Harry would understand this to be his cue to 'patrol the beat,' and would resent the appearance of any other policeman. Walking proudly up to the offender, he would push him off the road with his nose, and if the policeman attempted to come back again would lay back his ears and lash out at him with his forefeet. When he thought his master had walked far enough away he would trot after him, and, catching his sleeve, signal that he was again ready for business. His greatest sport, however, was chasing a runaway, and his master says that the saving of many a life during Harry's years of service was due to the gallant old horse's speed."

In reminiscences written for "The American Horse Breeder" the veteran horseman, George P. Floyd, tells a tale of the match between Glencoe Chief and Princess, in California, in 1859, for $36,500. Jim Eoff, the prince of tricksters, drove Princess, who was owned by Teakle. There were lively suspicions that Eoff was backing the other horse through agents, and the outside betting was enormous. The race was a ten-mile dash. When Eoff brought Princess out one of the first sights that caught his eye was owner Teakle on the quarterstretch with a shotgun in his hands. It was an object lesson for Eoff, who knew his man, and knew the gun was loaded with something heavier than bird shot. Each mile of the race, as he passed that gun, his weather eye was on it, and he called on the mare for a little more speed. She won, but the shotgun did it.

The former Kentucky trainer, O. B. Graves, now located at Guthrie, Oklahoma, writes us that he has added Lady Goldfield, 2:16¼; Yucca, 2:32½, by Ashland Wilkes, and a green pacer by Argot Wilkes, to his stable of horses in training, says the "Stock Farm." He also has the fast trotting mare Miss Margaret H., 2:16¼, by Norval, dam Lady Onward, by Onward. She has wintered nicely and is much stouter and faster than she ever was. This mare was one of the most consistent race mares out in 1900, is as good-headed one as lives. Then she can trot some, too, as last Saturday she stepped a quarter in 52½ seconds easily. She never did have the speed she has this year, although she showed a mile close to 2:12, half in 1:06, when in nothing like the form she is now in. Mr. Graves also advises us of the death of his fine young stallion Don McGregor by Don Pizarro, 2:14¾, dam Hixie McGregor, 2:28¼. This was a horse of wonderful speed, the best of individuals, and certainly had a bright future before him. His death is keenly felt, for in him Mr. Graves believed he had a world beater. He showed close to a two-minute clip last spring with about fifty days' handling, and Graves decided to let him get more age and become better matured before racing him. His death resulted from a veterinary operation for rupture.

OWNER OF DIRECTUM DEAD.

William E. Spier, former treasurer of the International Paper company and one of the most prominent horsemen in this country, died at his home in New York, May 8, after an operation for the removal of an abscess at the base of the brain. He was born in Northfield, N. Y., fifty-two years ago and for the greater part of his life resided at Glens Falls, where he was the owner of Suburban Farm, the home of Directum and many other noted horses. For several years he had bred light harness horses there, spending thousands of dollars every year to gratify his tastes in that direction. He drove frequently on the Speedway, but rarely tried his horses in a brush, being content to send them through the stretches at a good stiff gait and watch the others race. In October, 1898, while attending the trotting meeting at Lexington, Ky., he made a sensation in the horse world by buying the then champion trotting stallion, Directum, 2:05¼, in California, by telegraph, for $20,000. Mr. Spier formerly owned the stallion Robert McGregor, "the demon of the homestretch," but sold him to George H. Ketchum. Among others owned at Suburban Farm are Adbell, Del Mar, Major Del Mar, Copeland, Miss McGregor and Keeler.

SNAKE IN HORSE'S STOMACH.

Farmers who are frequently at a loss to know what strange diseases are destroying their stock will be interested in the experience of William Bickford, who lives in the town of Martinsburgh, Lewis county. Monday night a valuable horse, which had been running down for the past year, died, and Bickford's curiosity led him to investigate the cause. Upon opening the animal, he found the liver enlarged to three times its normal size. In the stomach, which he then proceeded to dissect, he found a live snake fully three feet in length and three inches in circumference. As soon as the reptile was liberated it made a lively escape by running under the barn floor.—Lowville Democrat.

L. E. CLEMENT'S HORSE GOSSIP.

Editor RURAL WORLD: The "Rider and Driver," in referring to a sale of Kentucky horses held in New York by Wilson Brothers of Cave City, Ky., says: "The State of Kentucky stands out distinctively and alone in the production of the saddle and harness horse of a certain peculiar type. There are no better judges than Messrs. Wilson Bros. They select only the very best obtainable and spare no pains in perfecting their horses, both for saddle and harness purposes, and not only are perfect manners considered essential, but particular attention is paid to condition."

This is an error ignorantly given to their readers by eastern papers. Mr. Clark, of Malden, Mass., who makes the buying and selling of this class of horses a specialty, has this season shipped several car loads from Missouri, where they are bred more extensively than anywhere else in the United States. We won over the whole country at the World's Columbian Exposition. The highest priced saddle stallion yet sold was Rex McDonald, bred in Missouri. These things are known to most RURAL WORLD readers, but called attention to them here may meet the eye of some of the eastern readers who, in their home papers, see such statements as that from the "Rider and Driver."

Wm. Mayo, Monett, Mo., had the misfortune to lose his Electioneer horse a few days ago. The horse was showing very fast, had been worked out, was being cooled off and was being led back to the barn when he reared and fell backward and killed himself. Mr. Mayo is working a two-year-old filly by Goodwood 4106, dam by Resumption, son of Blue Bull. She is a square gaited trotter, but her breeder and owner wants her to pace.

The same person has two brothers, the younger one, a yearling, he refused $100 for last week. Mr. Wm. Hughes, the breeder of these colts, is an engineer on the 'Frisco railroad and is able to give them a good opportunity.

C. C. Caldwell has a nice filly by Goodwood 4106, dam May Morning, by Resumption, son of Blue Bull, second dam Dona J., by Bair 1689, son of Bayard. This is one of the best individual colts I have seen anywhere and is well enough bred to go to the races or to become a brood mare.

J. G. Morris, four miles northwest of Peirce City, Mo., has a nicely formed filly by Goodwood 4106, dam by Hoosier Tom, sire of Miller Boy, 2:17; Bald Eagle, 2:22¼, etc.; second dam by a Kentucky saddle horse brought to Missouri about 15 or 20 years ago. This filly is a nice-gaited trotter, and Mr. Morris, although a substantial farmer, is breeding her for his own use; he says he wants a pair bred that way to wear out himself.

J. B. Larkin, Springfield, Mo., bought of his breeder, Mr. Chapman, a sorrel colt coming four years old, sired by Shadeland Nutkens, a son of Wilkes Nutwood, owned at the Shadeland Farm in Pennsylvania, first dam by Borden, 2:24¾, by Cuyler, out of the great brood mare Silence, by Alexander's Abdallah, second dam Woodbine. (Both of these mares make a great showing by their immediate descendants in the standard lists.)

The next dam is by Black Douglas, sire of two standard performers and sired by Clay Cadmus, by Neave's C. M. Clay 20. Clay Cadmus sired a mare that took a standard trotting mark at Sedalia, Mo. Mr. Chapman bred Black Douglas and used him in the stud in Montgomery County, Ill., then took him to Kansas and Nebraska; he has colts now in four states, and is likely to add several to his list of standard performers as well as to become somewhat noted as a sire of producing dams.

Columbus seems to think that I did not understand the language used when I say Mambrino Patchen was not a good second class sire. The records show that I am right. He has only one great son, Mambrino King, and during his stud service of nearly a quarter of a century, in the blue grass region of Kentucky, in the care of one of the best, if not the best, stallion owner in the state of Kentucky, the horse has less than 40 to his credit. Bred to the best mares in Kentucky, with a longer and better opportunity to sire dams than any other horse ever had, he only stands fourth in the list of sires of dams, as shown by the Year Book for 1900. A good second class sire would make a better showing. I would not, and I do not think Columbus would use such a horse free, if a first-class sire could be reached for pay.

No less than three breeders at Springfield have lost foals at or soon after foaling time, and all sired by the same horse. This is an unfortunate occurrence. One of these, Mr. James J. Kelley, has bred his mare to Aleckrite, son of Electrite, and asks my opinion of the breeding of this new candidate for honors. It is well known that his sire, Electrite, is one of the most successful sons of Electioneer. I had not noticed the breeding of the dam previously to the inquiry, and was surprised when I came to examine it. Out of a full sister to a 2:14 performer, the blood of Green Mountain Maid is doubled back, his sire being sired by the greatest son of Green Mountain Maid and out of a mare by another son; second dam by Arthurton, one of the best of the Hambletonian—Star sires, and the next dam a daughter of George Wilkes, also in the great brood mare list. It does not require a prophet to foretell success for this fellow as a sire.

J. W. Dunn is handling for W. H. Fink a two-year-old daughter of Zebu, 2:29¼, out of his brood mare by Gilbird's Sprague. I think there is no question but this is the best colt she has ever raised and at least three of them can trot into the list this season. The best one in Dunn's string is a chestnut gelding by Prodigal Jim, son of Prodigal, by Onward, dam the dam of Bob Murphy, 2:24¼, and his sister, Dolly T., 2:15½. Dunn thinks this fellow is a crackerjack, and he ought to be. Another in the string to be city broke is a large daughter of Russell Frisby, son of Alley Russell.

Stallions all along the line are doing a big business, and all who are using good judgment in the selection of well bred sires, will never regret that they took this advance move in order to procure better and more profitable stock. Mr. H. T. Vogel, at Dorchester, Green Co., Mo., has a daughter of Trumpeter, 2:20¼, that he is breeding in the hope of getting something fast and reliable. The mare Mr. Kelley bred to Mr. Frank Fellows' Electrite colt was by Trumpeter, first dam Gertrude, by Pocahontas Boy, second dam Bridget, by Blue Bull. This is breeding good enough for any one. There should be some good performers in the standard lists from Green County in the next year or two. The times are ripe and the performers are about due.

E. M. Weeks, who has been at Springfield for several years, and who has not been able to drive races since his successful campaign of the little Blue Bull pacer, Pat O'Brien, 2:21½, by Billy Davis, son of Blue Bull, owing to a weakness in his back, undertook to drive a matinee race April 25 at Mulhall, O. T. While in the race he fell from the sulkey dead. Most of the time for the last two years he has been connected with the livery and boarding barn of Benton avenue, on the east side. A younger brother is handling a string of horses at the Zoo Park at Springfield.

Notwithstanding the additions made to his stud in the early part of the season, Mr. O. C. Crothers is still doing a growing business with three standard bred harness horses and a saddler, and his patrons are nine-tenths farmers. There is nothing like having a good thing and then letting the people know it.

PRIMROSE A GREAT BROOD MARE.

One of the most wonderful of all brood mares was Primrose, daughter of Alexander's Abdallah and Old Black Rose, says "Volunteer" in the "Horse Review." She was foaled in 1865, lived to the extreme age of twenty-eight, and died in foaling her last colt. She was first bred in 1869, and her first foal, the great sire Princeps, came in 1870. In twenty consecutive years she produced nineteen living foals. Then for three years she was barren, and it was supposed that she had ceased breeding until she brought forth, in her twenty-eighth year, her twentieth foal, which cost her life.

Primrose was a marvel of fecundity. She lived to be twenty-eight and produced twenty living foals. Five other matrons may be mentioned with her as the six greatest of trotting brood mares. Of these Waterwitch lived to be twenty-eight and produced nineteen living foals and two dead ones. Miss Russell lived to be thirty-three and produced eighteen living foals; Beautiful Bells is still living at twenty-nine and has produced eighteen living foals, her last four years ago, when she ceased breeding; Green Mountain Maid lived to be twenty-six, produced sixteen living foals and was again heavy in foal when she died; Alma Mater lived to be twenty-five and produced sixteen living foals.

Primrose was the most fruitful of these, the true Belgravian dames of the trotting stud-book. However, while she had the greatest number of foals, she has not the greatest number of 2:30 performers. Six of her twenty foals made standard trotting records, against nine of Green Mountain Maid's sixteen, eight of Alma Mater's sixteen and seven of Miss Russell's eighteen. Of Waterwitch's nineteen foals, six—the same number as Primrose's—beat 2:30.

But in one particular Primrose stands unequaled as a brood mare. She is the dam of no less than ten sires of standard speed—three more than the number credited to any of the five other mares above named. Alma Mater and Beautiful Bells each have seven producing sons, Miss Russell has six, Waterwitch five and Green Mountain Maid four. A farther remarkable fact is, that of Primrose's ten producing sons, seven are sires of better than 2:20 speed and four of 2:13 or better speed. These are: Redwald, sire of Redinda, 2.:07¼, pacing; Binderton, sire of Maud C., 2:10¼; Princeps, sire of Greenlander, 2:12, and Maxim, sire of Mikado, 2:13, pacing.

Of Primrose's six standard trotters none now has a faster record than 2:20¼. This might, on the surface, argue that she was not a producer of extreme speed, but such is not the fact. Her son Redwald, 2:23½, by Lord Russell—now in Europe—beside being one of the most superbly handsome horses living, was a horse of tremendous speed. Injudicious early handling made him a hard puller and a bad foreleg threw him out of training before he had ever shown the public his real speed. But many a time he has been timed quarters in 31¼ and below 32 seconds, and the best critics, who knew him well, have told me that nature intended him for a 2:10 trotter.

Primrose's nineteenth foal was Guiado, by Pistachio, 2:21½, the pacing brother of Nutwood, foaled in 1889, when his dam was twenty-four years old. He was given a three-year-old time record of 2:30 in 1892 and then dropped out of sight for eight years. Last season he reappeared on the New England circuits. In three races over half-mile tracks he won each in straight heats, trotting in 2:20¾ in one, in 2:20½ in another, and in 2:20¼ (his record) in the third. His fourth, and only other race of the season, was over the mile track at Dover, N. H.; in this race he was second and lapped out the winner, Alkalone, in 2:14½, in the fifth heat, distancing all the other starters. I now notice that Guiado has been named in the $3,000 purse for 2:19 trotters at Hartford and the $2,000 purse for 2:20 trotters at Providence by Frank Barnard, of Lowell, Mass., indicating the belief of his owner that he is of Grand Circuit calibre. Favonia, 2:15 (whose dam was Fadette, also third dam of Caid, 2:07¼, and fourth dam of Kitty Newman, 2:14¼), has stood as the fastest trotter out of an Alexander's Abdallah mare for over a dozen years, but if Guiado trains sound this summer the chances are that she will lose that position and old Primrose's laurel-wreath gain one of its brightest posies.

Undoubtedly Primrose's first foal, Princeps, by Woodford Mambrino, was her greatest produce. He now has a list of fifty-one standard performers, including such celebrated ones as Greenlander, 2:12, and Trinket, 2:15; thirty-nine sons that have sired 177 and forty-one daughters that have produced sixty-one performers. Four of the most sensational trotters out last season carried the blood of Princeps. Georgena, 2:07½, winner of the Charter Oak $10,000 purse, is by Epaulet, 2:19, whose dam was by Princeps, and Lucille, 2:07, to wagon, is by Brummell, son of Epaulet. Lucille's 2:07 was the fastest mile trotted by a mare in 1900 and Georgena's 2:07½ the fastest trotted by a mare in a race. Boralma, 2:08, the ultra-sensational, is, as is well known, out of a mare by Earl, 2:23¾, son of Princeps. Miss Sligo, 2:10¼, one of the fastest trotters ever seen in the west until she was so overcome by the heat that she almost died the day that she made her record at Joliet, Ill., is by Sligo, an inbred Princeps, son of Greenlander and a mare by Earl. For a long time after the race referred to it was believed that Miss Sligo was ruined for racing purposes, but she is again in training this spring, and if she can take her preparation and rounds to her form of last July and August she is a sure 2:08 trotter.

Another descendant of old Primrose that I have my eye on is Red June, 2:14½, the Colorado-ex-Iowa mare, who trotted so many good races last season, winding up with the seven-heat affair at Lexington that she won from a field of nine. She is as handsome as a daughter of Redwald would be expected of right to be, and I would not be surprised if she landed in the 2:10 list, or very close to it. Mr. Thomas Stark, of Colorado Springs, Colo., her present owner, who bought her last year, has nominated Red June in several Grand Circuit early-closing events, including the $10,000 Roger Williams purse for 2:14 trotters at Providence. Her record also makes her eligible to the $10,000 Massachusetts purse at Readville and to the Transylvania.

HUNTSVILLE (MO.) HAPPENINGS.

Congressman W. P. Terrill has kindly furnished a newsy letter regarding horsedom at Huntsville, Mo., as follows, says the "Spirit of the West." "Nut Crusher, 2:20, is in the stud here, and is doing a good business. This is the horse I mentioned to you in my letter of two years ago, and stated that while unbroken, he would be put in the hands of a trainer after the season closed, and predicted he would go fast. Charley Webster took charge of him on July 25th, and in fifty days he could pace miles in .26. He took him to Kansas to the farm of Mr. Lehman, with whom he had contracted to train. The horse improved quite rapidly, and entered through the blue ribbon circuit but injured a tendon severely about the first of July, and could not start. But as he had improved considerably, was started at the Boonville meeting, and won his race in straight heats, getting a mark of .25½. This race made him quite sore, but was started four times afterward, winning two firsts, one second, and once unplaced.

At the Huntsville fair he won the .25 pace, though very lame, getting a mark of 2:20, and handicapped as he was he paced the last halves in 1:06 and 1:07, pacing the last half of the last heat in 1:05, the last quarter in .31. This was certainly a remarkable performance for a horse short of work, and with a bad tendon on a half mile track in poor condition. He is perfectly sound this spring, and if he remains so will certainly get a mark much below 2:10, as he is game to the core, level-headed, and has wonderful speed.

Messrs. Hammett and Terrill have a promising two-year-old stallion at the track, sired by King Herod, dam, an inbred Princeps mare. This is a handsome fellow, and they think he will make a trotter. Mr. L. J. Hill is handling horses at our track, and has some good ones. He has "Dud," a bay gelding, record 2:36, that they claim has shown miles in 2:15. A chestnut three-year-old gelding by Strathberry, 2:04½, out of a fast dam that is quite promising. Also a bay gelding owned by Iowa parties that looks like "the real thing." Mr. Hill will also handle Nut Crusher this spring.

William Carter, formerly of Mexico, Mo., is handling horses at the Moberly track, six miles east of us, and I understand has a string of good ones. We have a good half mile track at this place, and expect to hold a fair this season, but have not claimed date as yet."

COBS IN DEMAND.

"Four out of five persons who come here to look for a carriage horse tell me they want to buy a cob," said a well-known New York dealer. "No difference whether the horse they are looking for is fourteen hands or sixteen hands in height, breedy and rangy or close built and low set, if it's a short-tailed horse it's a cob. The term is as much misused as 'tally-ho' was a few years ago, when nearly everybody called a four-in-hand coach for a drag a tally-ho.

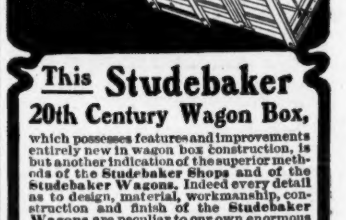
"A cob," he continued, "is properly a horse not over fifteen hands high, or at least under medium size, and as strong as a buffalo in proportion to his height, with unusual bone and substance and a big body on short legs, yet with snap, action and quality enough to show at a glance that ne has a dash of good blood. The name is applicable to saddle horses as well as harness horses, though nowadays one hears much more about cobs in harness than about cobs under saddle.

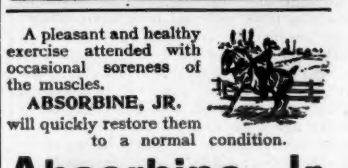
"Horses over fifteen hands may be cobby built, but they are not cobs, according to the best usage of the term among horsemen for more than a hundred years. When horses of this type are above fifteen hands they are carriage horses in America and hackneys in England. I suppose it would be correct to call a trotting-bred carriage horse, like Red Cloud or Burlingham, a hackney, in the broad sense of the term, for up to about twenty years ago, when the Hackney Stud Book Society was organized in England, this word was used to describe a type rather than a breed. The family of horses now known as the hackney was very generally spoken of as the Norfolk trotting horse, and it embraced both hackneys and cobs."

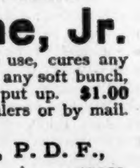
SPRINTERS ARE OFTEN GAME.

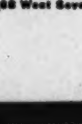
That trotters can be sprinters and still be game has been conclusively proven since racing on the speedway has become an established fact. Among thoroughbreds it is not an uncommon thing to see a horse with tremendous speed and weight-carrying ability that is almost unbeatable at his favorite distance, yet which is physically unable to go further. Kingston, one of the greatest horses ever seen on the running turf, while he was all-conquering at distances up to a mile, could not beat a good horse over a mile and a half course, says the "Horse Breeder." He could take a horse like Tenny and at a mile run him into the ground, while in races over that distance, for instance at one mile and a quarter, a horse like the latter would beat him. No one ever dreamed of calling Kingston a quitter, for his courage was that of a lion, and his speed and weight-carrying ability tremendous.

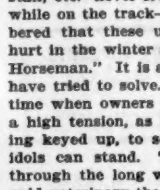
Many trotters are condemned because they cannot go a full mile, and while there may be just cause in some instances, the fact remains that many of this kind would put up a wonderfully game struggle at three-quarters. And while it is not best for the breeding interest to encourage the development of short-distance horses, especially as long as dash races are unpopular, owners have very often condemned, and doubtless will continue to do so, horses that when raced on the road are almost unbeatable at distances less than a mile. They even show great class at their distance and can beat horses of just as much speed that would finish ahead of them were the brush carried a little further. Such instances are often caused by the horse being a quitter, more frequently by the lack of muscular development, but in those instances where it is from the latter, a horse may be dead game, may have a stout heart and great lung capacity and a good brain. Consequently he would be extremely useful as a sprinter were such races in vogue, and is often very hard to beat in a brush on the road. There are many pacers that can draw a wagon in a dash against time a half-mile very close to one minute that are beaten by horses that do not possess the same amount of speed. These can be classed as quitters; they lack class and correspond to the selling plater on the running turf.

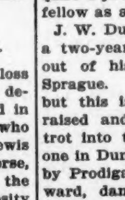












Home Circle.

IN THE HEART OF THE WOODS.

Such beautiful things in the heart of the woods!
Flowers and ferns, and the soft green moss;
Such love of the birds, in the solitudes,
Where the swift wings glance, and the treetops toss;
Spaces of silence, swept with song,
Which nobody hears but the God above;
Spaces where myriad creatures throng,
Sunning themselves in his guarding love.

Such safety and peace in the heart of the woods,
Far from the city's dust and din,
Where passion nor hate of man intrudes,
Nor fashion nor folly has entered in,
Deeper than hunter's trail hath gone
Glimmers the tarn where the wild deer drink;
And fearless and free comes the gentle fawn,
To peep at herself o'er the grassy brink.

Such pledge of love in the heart of the woods!
For the Maker of all things keeps the least,
And over the tiny floweret broods,
With care that for ages has ceased,
If he cares for this, will he not for thee—
Child of an infinite Father, see—
And safe in such gentlest keeping stay.
—Margaret E. Sangster.

WINTER BLOOMERS.

Many put in the window garden in the fall plants which have given a profusion of bloom during the summer. They are disappointed when they not only do not bloom, but also drop their foliage, and in the majority of cases droop and die. The way to have the plants bloom freely is to start them now. Take from the geraniums known to be good bloomers slips and plant them in a shallow box in carefully prepared mellow soil. As soon as these cuttings are well rooted put them in small pots—ones holding less than a quart of earth. Then pinch off every bud that shows itself until September. I have best success when I put these winter bloomers in the window when I can still have the windows open for a time, at least, during the day. In this way I get the plants gradually accustomed to the conditions of the window. By pinching back you make the plant more branchy and thus more flower stalks will result.

To the geraniums I add a white double petunia. This plant must be carefully watched for red spiders. If it is given a good showering every day this enemy will be routed.

Then don't fail to start some new begonias. They will grow so thrifty under some shrub in the yard, and if protected from frost will bloom continuously during the winter. An impatiens sultana is a constant winter bloomer, if kept warm and free from the attacks of red spiders.

And don't forget at this time to renew the hanging baskets. No collection of plants is complete without some vines. The hardy ones like the several varieties of wandering Jew and some of the hardy ivies are the most satisfactory where window space is limited.

The flower lover always has the greatest difficulty in restricting herself to the number of plants that she can keep successfully. Yet if profuse blooming is desired, her motto must be this many and not one more.

MRS. MARY ANDERSON.

Caldwell Co., Mo.

Written for the RURAL WORLD.

ROSEDALE FARM PAPERS.

Thoughts of Time and Eternity.

I received a letter a few days ago from a friend telling me of the death of an uncle of hers—also a brother-in-law of the late Judge Long of St. Louis. They were old friends of ours. Mr. Wright was a contractor and had many men working under him, but for the last few years his mind had given way under heavy pressure and bodily ailments, so that he was a constant care upon his patient, devoted, ever-faithful wife and children. Now, how the dear old husband and father will be missed from the home circle! When I was visiting with my friend in Tuxedo Park, one year ago last summer, Mr. Wright and several other friends were invited out there to spend the day with us. We all had a very pleasant day together, one never to be forgotten. When the time arrived that the guests that lived in the city had to take the train for St. Louis, we all went to the depot with them. When I gave the old gentleman my hand to say good by, I thought, dear old friend, we will never meet again in this world. I said, "We will meet in the better world, if we never meet again in this." And now when I learn he has gone to the better world, my mind goes back through the vista of years—years that have passed with a rapidity scarcely to be realized, years of anxiety and care—back to the many happy days I have spent in the company of those dear friends. To live it all over again; to live in the happy past with our loved ones, oh, what a blessed privilege of the many happy events of our past lives.

From that period we enjoy letting the mind wander from the time when we were full of buoyant hopes and ardent aspirations, forward to the present time. How many disappointed expectations! How many crushed hopes! How many unrealized dreams come back to our recollection!

We feel there must be a future; or else life—this human earthly existence—is a mystery far greater than ought else in this mysterious world in which we at present exist. I often think our lives are like a river, ceaselessly flowing—ever beginning, never ending—upon the surface of which we float, from one scene to another—from one lovely prospect to another grand panorama. Thus we float on through childhood to youth, from youth to old age where the prospect widens and the river deepens. There we pass over, and glide out into the boundless ocean of eternity. There we will meet our dear friends that have gone on before us. There our affections will be blended, blending as the river with the ocean. There in that haven of rest we will enter upon the endless enjoyment for which the heart here so ceaselessly yearns. On this hope we lean as an anchor to the soul. ROSA AUTUMN.

Fayette Co., Ill.

Written for the RURAL WORLD.

HOMEKEEPING.

Dear me, what a reputation I have won for myself! I'm quite sure I never intended to say anything to make anyone of the sisters or brothers think I was a "crank." Far from it, if I do have to say it for myself. My ideas of what home should be are not formed on extremes in any way, shape or form. I believe in homekeeping, not housekeeping alone. If the young man who has such dreadful opinions of Blue Bells should happen in any time, he would probably find some dust and flies; also a pair of scissors on the floor and bits of paper as large as peas strung from kitchen to dining-room. Now, if I were a "crank housekeeper" (which I'm positively not), you see you would not find all those things in my house. I believe in cleanliness as far as it is necessary. Perhaps if I were to explain to the young man that my house consists of only two rooms, he would then see why I was anxious for the man of the house to remove his muddy boots. It's harder to keep two rooms presentable than it is to keep six or more, for you've only one company room, and anyone who comes in unexpectedly and finds things rather topsy turvy, goes away with the impression that you are a careless person. You see, sir, there was method in my madness. That mud on those boots would soon ruin my only carpet and cause me to scrub the kitchen floor so much it would soon wear out. No, I'm not a crank; if ever you come to this part of Missouri just call and see us and a pleasant time shall be yours, unless the flies happen to be very troublesome, and then—well, as your mother never had any flies, I'm very much afraid a few would annoy you.

Who belongs to the Sunshine Band? I have thought of organizing one here.

Now is the time when one has to do lots of thinking about what to get for meals. Winter provisions are gone and green things not yet plentiful. After you've fried and boiled potatoes until you are tired of them, take the amount you want and bake them in a hot oven. When done take out, cut off the end, scrape out carefully so as to leave the shell whole. Put the scrapings in a bowl, mash and season with plenty of cream and milk, butter, pepper and salt; work thoroughly, return to the shells, letting the potato rise an inch above the rim of shell. Stand them upright in a pan and brown in the oven. Serve as soon as browned.

Chickens, turkeys, housecleaning and spring sewing, three meals a day, but keep up your courage, sisters, we country wives have much before us in the coming months. Remember kindly words encourage and make the burden lighter. Life is full of clouds at best; make the sun shine every chance you get. It does you no good to discourage any one, and does them harm, so speak the encouraging word. "BLUE BELLS."

Ralls Co., Mo.

Written for the RURAL WORLD.

A PLEA FOR BETTER RURAL SCHOOL HOUSES.

I agree with S. F. Gillespie regarding district schools. I speak from experience, having taught but one year ago. I hope what Mr. Gillespie has said will sink and take root in the hearts and minds of those interested in the "district school."

Often I have stopped at the schoolhouse door, dreading to begin the day in such a dingy, dirty, dark room. If such a room is repulsive to a teacher, how can children enjoy it? They, as we all know, appreciate bright, cheerful surroundings. I remember one very gloomy, misty, dark day in October. The room seemed very damp and the children seemed to have rather damp spirits. I knew I did not look very bright. Even if I had, I know it would not have brightened the room any. I thought I must do something. So at the noon hour I proposed to the boys to bring in a whole lot of large branches of bright colored leaves and evergreen. They did so. We put these into every dark corner, around the windows and over the dark boards. How nice the room looked with something bright. The children looked more contented, went to work with life.

This shows the need of warmth of color in a school room. If the walls were painted in some cheerful shade, in harmony with the woodwork, the floors made of hardwood, instead of soft pine, pictures framed in oak frames, a stove of modern cast, an organ, so that there might be marching to music, reference books to encourage children to seek for what they would like to know, and then some other books, good uplifting ones, we would find that there would not be so many grown men and women who do not like to read. If these things which I have mentioned were righted, I believe there would be little space left to find fault with the "instructor."

We are supposed to cultivate the aesthetic nature of the young; then let the School Board give us a starter by changing the surroundings. Nearly all schools feel the need of pure water. This certainly is a very serious drawback. The lighting of the room should receive attention at least, whatever else is neglected. We teachers could call attention to a hundred things if the School Board would only ask our opinions.

MRS. J. W. GARSIDE.

Putnam Co., Ill.

Our district school houses do need more attention. If the well equipped high school of our town, with its properly lighted, hygienically seated and ventilated rooms, its maps, charts, pictures of distinguished literary men, its library and even laboratory, is essential to the best development of the children of the cities and towns, what of the children of the rural districts to whom the school life is in many instances the only means of knowing of the outside world? There are in centers of population other educational factors which enable a boy or girl to know what are his rights. The rural schools in many sections of our country where children are packed three and four to the seat in a cheerless, dingy, in some instances, positively filthy schoolhouse, are a positive injustice to the youth of such sections.

REMINISCENT.

When we played shinny, long ago,
Our clothing did not fret us,
We wore no coats of sunset glow—
Our mothers would not let us.
Oh, we were coltish in our glee;
We loved to prance and whinny;
We asked no "niblick" and no "tee"
When we were playing shinny.

Oh, where are those companions now—
The thin boy we called "Fatty;"
The boy ill clad, with grimy brow;
The boy so neat and natty;
The boy who was so very fat
His comrades named him "Skinny?"
There is no friendship here like that
We knew while playing shinny.

Perchance, one day, a club I'll take
And set the golf ball flying.
At least, an effort I may make;
There's naught, you know, like trying.
But I shall miss those boyish friends,
So freckled faced and grinny;
No modern game can make amends
For those lost hours of shinny.
—Washington Star.

Written for the RURAL WORLD.

BOOKS.

Ella Carpenter always writes us a good letter. I like what she said about books, page 126. It does take so little money to buy good books now, that the poorest can afford them. We have over 100 12mo. volumes of choice fiction, poetry, history and adventure, and I think the average cost was not more than 15 cents each. We buy books for what is printed in them, not for the fancy bindings, but one can often buy elegantly bound books as good as new in second-hand stores for a fraction of first cost. One thing we settled on years ago, we never patronize the traveling agent who is selling subscription books; this agent never makes less than 40 per cent of the sale price, and often as much as 60 per cent. If we want such books we write the publisher direct, asking for the lowest price in the binding we wish to purchase, and we have never failed to get the book at about half the canvasser's price. We have some very old books, one bearing date 1732. It is a religious work. Another is a Latin dictionary of 1763. We also have Psalms of David in meter, date 1782; Spurrier's Practical Farmer of 1794, and an old Catechism dated 1756.

At the Missouri Botanical Garden last fall Dr. Trelease allowed me to handle a book published in 1474. It was in the Latin language, and it contained some of the finest initial letters I ever saw. The paper was white and the ink so black that it seemed to stand out from the paper.

I was seven years old when I read my first book, and that book was the Pathfinder, by Cooper. I have since read all that noted author's works, but none gave me the pleasure the first did. In reading, if one cares to impress the matter on the mind, it is a good plan to sit down with book, pencil and pad and carefully copy what it is desired to retain in the memory. Without wishing to boast of my reading, I will say that there was a chapter in Blackstone's commentaries that was very necessary to know and know well. I sat up until 3 a. m. and copied it carefully; that was in 1875, and I believe that I can repeat that chapter word for word to-day, and my memory is getting treacherous. Father taught me "Tam o' Shanter's Ride" when I was seven years old, and last winter I found that I could repeat it with scarcely the omission of a word. A noted writer deprecated the reading of many books, said he: "I find the man of many books to have a smattering of all, but he of one good book knows it all," and I bow to his superior knowledge. There are two books that no one can afford to be ignorant of, one is the Bible and the other is Shakespeare. Even if the reader is not a believer in the tenets of Christianity, he cannot afford to be ignorant of the contents of a book which has so strong and enduring a hold upon so many people, and in Shakespeare he may find something to suit any form of the sunshine or the shadow of life.

Among our books are several volumes of poetry, Moore, Burns, Byron, Hood, Scott, Goldsmith, Gray, Thompson and others. We have no complete set of Dickens', or Scott's novels. Several histories are on our shelves, while Blackstone, Walker Chitty, Parsons and Greenleaf, seldom opened, are memories of student days. C. D. LYON.

Brown Co., Ohio.

Written for the RURAL WORLD.

A FEW SUGGESTIONS.

Here are a few things boys and girls can do who feel shy and embarrassed when in company, because they have not the wit, beauty or talent some of their companions possess.

You can take a joke good naturedly; this is not always easy to do, for jests sometimes contain a sting; but good form demands fun must be taken as fun, and one should watch against being too sensitive.

Be natural if you would appear at your best. Affectation will spoil the fairest. Interest yourself in what others are saying and doing around you and presently constraint and embarrassment will pass away.

Accept a compliment simply and courteously; to depreciate it by contradicting the person who kindly offered it is rude; also vain; as it infers you wish them to emphasize by repeating it.

Cultivate pleasant thoughts, and by and by you will find yourself saying agreeable things which in the long run are better than witty ones. RAY EMMET.

St. Louis Co., Mo.

ARE THE STONES OUT?

That is the first question asked either audibly or to one's self when asked if one wishes a piece of cherry pie. We are reminded of this by the advertisement which appears elsewhere in this issue of the Goodell Co.'s Cherry Stoner, a very ingenious and effective device for removing the stones without bruising the fruit. This, of course, retains all the juice and makes the fruit desirable in every way both for immediate use or canning, as desired. We all of us know from experience how annoying, not to say sometimes painful, it is in eating a cherry pie to strike a stone which in some way or other has not been removed. By using the stoner referred to above all this is avoided. The Goodell Co., located at Antrim, N. H., is a large manufacturing concern, and this is one of their specialties. Please refer to their advertisement, and if you cannot find this little machine at your hardware dealers write them direct and they will see that you get one. In corresponding please mention this paper.

A BUSINESS MAN'S OPINION OF THE TOBACCO HABIT.

I am most firmly convinced that no young man who hopes to win success in any life vocation calling for brains and energy and personal agreeableness can do a more unkind turn to himself than to acquire or retain any form of the tobacco habit. The other day a young fellow came into my office looking for a business position, but I wouldn't be enveloped daily in the two-for-a-nickel stench that young chap carried about with him even though it were joined to the business ability of a Rockefeller. In the eighteenth century every gentleman felt it incumbent upon him to go about with a box of snuff in his pocket, which noisome compound he was always stuffing with finger and thumb into his reeking nostrils. The nineteenth century gentleman has dropped the snuff box, but feels that he is not quite debonair unless he has a smoking roll of dried tobacco leaves between his teeth. But I live in the faith that a twentieth century gentleman is at hand who will find himself cleaner and sweeter, as well as more gentlemanly, with nothing of Walter Raleigh's weed about him anywhere. A happily increasing number of strong-minded young men have already started out on this road to a higher gentlemanhood, and they are likely to win the reward their good sense deserves.—Western Penman.

Poultry Yard.

HELPFUL HINTS.

Editor RURAL WORLD: I would like to say to Jacob Hetrick that incubators are all right (the good ones). We did better raising the chickens after we "experienced" on two hatches. Our brooder was one that was heated at the bottom, and we all know hens warm from the top, and then, too, we kept them up off the ground too long. They should have the same conditions as when with a hen. After we contrived a brooder after our own ideas, and let them have a "ground run" as soon as they were 36 hours old we did finely. It does not do to crowd chicks even a little, and one can as easily attend to 50 or 100 in a brooder as 10 or 15 with a hen. They soon learn the right place.

After seeing quite a number of incubators and brooders and having had personal experience with some, do not hesitate to say that we (all of us) think the Sure Hatch is as near perfect as can be made. There may be others just as good or even a little better, but we think we have never seen one.

I wonder if anyone ever raised popcorn especially for young chickens? Try it. It saves time and we consider it the best thing for the evening feed as soon as the chicks are old enough to eat it.

BELLE M.

SOME MORE INCUBATOR EXPERIENCE.

Editor RURAL WORLD: If the brothers and sisters will listen to me for a few minutes I will tell them our incubator experience.

About two years ago Mr. J. M. P. got the chicken fever, read all the poultry journals he could get for about six months, then rented the little twenty-acre farm on which we live, and bought a Successful incubator (hot air) and eggs to fill it. But I found out after the incubator and eggs got here that I was to have a share in the business, too, for I was the one to run it. So he put the machine together and I commenced my work. I ran it about two days to get the temperature even, then put in the eggs.

Directions said to run it from 102 to 103 degrees the first two weeks, and from 104 to 106 degrees the third week. The result was five strong healthy chicks. The next time we got 69 chicks and raised 63 of them. We made two more hatches last year, but by that time the weather got so warm, and in trying to keep up with our instructions I suppose we got the temperature too high, as we only got 28 chicks each time.

Well, I concluded never to try it again, but after considering it all winter, I concluded to try it once more this season, and for the first time this year I went to town one morning about four days before the end of the hatch. When I came home the thermometer registered 108 degrees, and we got 26 chickens, all of which died in a week.

About that time I read of some good brother's experience in the RURAL WORLD, and he said that 106 degrees would kill almost any chick, so I concluded to try his plan and ran the next hatch at 102 degrees the first week, 103 degrees the last two weeks, as near as I could, and I got 113 nice chicks. That made me feel pretty good, I tell you. I hurried up and set it again, and this morning I took off 140 lovely little chicks. So I thank the kind brother for his help. If it had not been for him we would not have had any success with our incubator.

We do not have much trouble raising the chicks after they are hatched. We have a brooder. We feed rolled oats the first two weeks, then after that cracked corn that we buy at the feed store takes the place of the oats.

The hawks got about 20 of my last hatch. I went to town yesterday and got a gun to kill Mr. Hawk with, but he has not put in appearance since I got the gun. I think I shall keep it till he does come back.

If the editor is kind enough to publish this, perhaps I will tell you how I get along with my next hatch. Let us hear from some more people that are trying to hatch chickens in incubators.

MRS. J. M. P.

The Railroad Farmer's Wife.

Chillicothe, Mo.

Our readers will be pleased to hear further from Mrs. J. M. P.—Editor.

MISSOURI LANGSHAN BREEDERS.

Editor RURAL WORLD. There is an ornanization known as the American Langshan Club. Ben S. Myers, Crawfordsville, Ind., is its president, and A. S. Asch, Princeton, Ill., is secretary and treasurer. The membership fee is $1, which must accompany application for membership; and the annual dues are $1, payable October each year. The annual Langshan catalog containing rules and regulations can be had by addressing the secretary.

The best and most noted Langshan breeders and fanciers both East and West are members of the club, yet there are lots of breeders of fine Langshans that are not members, particularly in Missouri. There is no state in the Union where more good Langshans can be found than in Missouri. The Langshan class at Missouri's leading shows, such as the Missouri State, St. Louis, Kansas City, Springfield and the Northeast Missouri, is always a strong and attractive one. At each of these shows last winter there were from 60 to 100 fine Langshans in competition, showing the lively interest in this grand variety of fowls.

It is the desire of the officers and members of the Langshan Club to hold a state meeting of the club at some suitable point in Missouri, with a view of promoting and pushing the Langshan interest to the front and to make such an exhibit in the Langshan class as has never been seen heretofore at any show in the state. We invite and urge every Langshan lover, breeder and fancier in Missouri to join the American Langshan Club and help push and keep this favorite in the front rank, where it belongs. Breeders of the numerous other varieties of poultry have all organized specialty clubs, and each is doing his utmost to boom his choice. Let Missouri Langshan breeders not fall behind. Those who are not already members should become so at once by sending $1 to Secretary Asch at Princeton.

The Northeast Missouri Poultry Association which holds its second annual show at Bowling Green, Mo., December 3 to 6, with Ben S. Myers and D. F. Heimlich as judges, has extended a cordial invitation to the Missouri Langshan Club members to hold their first meeting at that time and place, the location of the meeting will, however, be determined by a vote of the members.

This association will, if its invitation is accepted, offer some splendid cash premiums on Langshans, and will spare no effort to make the meeting a grand success. The American Langshan Club will offer a magnificent cup to be competed for by club members only. The prospect for a great Missouri Langshan meeting is very promising. Become a member and help it along.

JOHN HETTICH, Vice-President.

Missouri Division American Langshan Club.

Bowling Green, Mo.

THE SACRIFICE OF THE BRAHMA.

The writer of the following, which we find in an English exchange, seems to be in much the same frame of mind as is our correspondent, Mr. Kinder:

The Brahma fowl, from 15 to 20 years ago, was one of the most popular breeds of poultry in existence. It was looked upon then as being good all round; good as a layer, and more than passable as a table bird. In the fancy it was worshiped as being the successful outcome of scientific breeding, and at the period I mention the Brahma was a beautiful bird, stately, dainty—the impersonation of high breeding. But, while the breeders and fanciers of the Brahma were prostrating themselves before "markings" and "feathers," the bird's utilitarian properties were being lost sight of. It was feather, feather, with them, always feather. The bird, in consequence, became a prodigy of fluff and feather. Flesh, eggs, size, and fecundity were neglected. Markings and feathers took their place, but these were found to be non-satisfying to a hungry stomach. The bird's non-utilitarian quality had been found out. Then an attempt was made to give the bird size. Size was obtained presumably through a Cochin channel, and the result is seen to-day in an abortion neither one thing nor the other. The Brahma of the present day has lost caste both in the show-pen and the poultry-yard. It gives satisfaction in neither.

The Brahma has been sacrificed to "feather," yet it is too good a bird to utterly lose. In the old days it was a rare good winter layer; its eggs were fertile; the chickens strong, and easily reared. Now the reports are entirely different. The cause of deterioration? Because chickens were reared from fowls that were poor layers, but that had "feather;" chickens were coddled, and were not encouraged to scratch for their food, because the exercise would destroy its foot "feather;" chickens that when hatched were found to be featherless on the middle toe were put aside for the pot. In many cases those chickens came from business hens, too busy in supplying eggs to think about "feather" on the middle toe for their progeny. And so, what with faults of commission and omission on the part of the fancier, breeder, and judge, decadence had its chance—and took it. Deterioration undermined the best points of the fowl, and neglect consequently followed. To-day we have a Brahma without Brahma type, a bird that—bolster-like—is best part feathers—a hen that lays more than half its eggs unfertile, and whose chickens are difficult to rear when hatched. This the result of the worship of "feather"—the ritual of the fancier, who forgets that utilitarian points must not be sacrificed to fads. The fruitless tree's destiny is to be burned; and the fowl that has nothing but feather to recommend it is useless, and must be cleared out or its useful properties restored.

THE BUFF LEGHORNS.

In looking through a recent edition of a poultry journal I found several articles on the Brown and White Leghorns. One man wrote: "The Brown Leghorn is the most active, greatest laying, nattiest appearing and most beautiful of feathered fowls bred to-day." Another man called the White Leghorn the "shining glory of the feathered world;" said they would lay more eggs, and larger and better ones than any other of the Leghorns. These writers remind me of the man who put on blue goggles and went out doors after the recent snowstorm and exclaimed: "Oh, see the beautiful blue snow!" he had on that kind of goggles. Well, as for me, my goggles are golden. I believe in the gold standard. I think the goose of olden time that laid the golden eggs must have been buff colored. About eight years ago I was breeding White Leghorns and liked them. I read a description of Buff Leghorns in the catalog of a noted firm, but had never seen one, as there was none in this part of the country. I realized that the buff varieties were to be "the fad" of this country, and so bought a setting of eggs from a firm that had imported stock. From those eggs I raised a trio of Buff Leghorns, the first I had ever seen. I liked them so well that I sold my White Leghorns and White Rocks. I have hens that will weigh four and one-half pounds, and that is large enough; for anything larger than that a turkey is the fowl to get. There isn't a fowl on earth that has a sweeter or tenderer meat, or better, than the Buff Leghorn; and as for eggs, they lay as many as any variety, and larger ones than either the Brown or White Leghorns. Can't say they are any better, but that depends on what they are fed, anyway. Feed them on stale fish, musty grain, etc., and you will get stale eggs. A great many of the large broiler plants are raising Buff Leghorns for broilers. They grow so quickly and look so plump and so rich when dressed, with their yellow skin. As for beauty, where can you find a more beautiful bird? with their rich, golden plumage an even color throughout, it is like rich silk glistening in the sunlight, pure white ear lobes, and bright yellow legs, which with their stylish carriage and quick energetic movements, make a bird that attracts attention anywhere. I never want for fresh eggs; have not had a frosted comb this winter; but my houses are tight; in very severe weather a curtain hung around the roosts at night will protect them. My houses are made of two thicknesses of matched boards, with tar paper between, which makes them tight and warm. Take them all around, the Buff Leghorns are the fowls for the farmer and the fancier.

GEO. C. HOWE.

EGGS AS FOOD.

Would it not be wise to substitute more eggs for meat in our daily diet? About one-third of an egg is solid nutriment. There are no bones, no tough pieces that have to be laid aside. A good egg is made up of ten parts shell, sixty parts white and thirty parts yolk. The white of an egg contains 6 per cent water and the yolk 52 per cent. Practically an egg is animal food, and yet there is none of the disagreeable work of the butcher necessary to obtain it. The vegetarians of England use eggs freely, and many of these men are 80 and 90 years old, and have been remarkably free from sickness. Eggs are best when cooked four minutes. This takes away the animal taste, which is offensive to some, but does not harden the white or yolk so as to make it difficult to digest. An egg, if cooked very hard, is difficult of digestion, except by those persons possessed of stout stomachs. Such eggs should be eaten with bread and masticated very finely. Fried eggs are much less wholesome than boiled ones. An egg dropped into hot water is not only a clear and handsome, but a delicious morsel. Most people spoil the taste of their eggs by adding pepper and salt. A little sweet butter is the best dressing. Eggs contain much phosphorous, which is supposed to be beneficial to those who use their brains much.—N. Y. Ledger.

A CENTURY GANDER.—It is stated that William Beckwith, Chardon, O., a farmer there, is the owner of a gander known to be over 100 years old. Beckwith's father brought the gander with him from Connecticut. The bird is named Socrates, and is still the leader of the flock.

POULTRY.

The Pig Pen.

JUDGING AT KANSAS CITY SHOW.

Frank D. Winn, secretary of the National Breeders' Show, and also of the organization representing Poland-Chinas, gives the following explanation of the system of judging adopted by the managing committee on Poland-Chinas at the Kansas City show, this method to apply only, of course, to the Poland-China breed: "The four judges who will tie on ribbons on the Poland-Chinas at the Kansas City show are T. B. Hart of Illinois, J. M. Klever and J. C. Hendrick of Ohio, and W. Z. Swallow of Iowa, who was substituted for W. N. McFadden, who could not serve on account of his official position with the American Poland-China Record Co. These gentlemen are all well known and have the confidence and esteem of breeders both as to their judgment and to their honor. The Managing Committee does not believe that any one of these men would let any little personal feeling interfere with their best judgment in placing the awards, should there be any, yet there are always those exhibitors who imagine they will not get a fair deal on account of personal differences, etc., and to ease the minds of such men we have adopted a method of judging which will make it almost impossible for any breeder to be injured unless there are as many as two of the judges working against him. Two judges will work on each class with a referee to decide in case of a disagreement, and one judge will then, of course, be out on each class. The judges will be rotated, the referee changed each time as well as the man who is out. It can readily be seen that unless both of the judges on a class or one of the acting judges and the referee are disposed to be prejudiced and working against the same breeder, it will be impossible for him to get the worst of it. This method of judging was adopted for the great combined cattle show at Kansas City this fall, and in the opinion of the committee, would be the most satisfactory that could be used for the Poland-China hog exhibit. The committee determined to go to the extra expense of the additional fourth judge to make it as fair and satisfactory to all exhibitors as possible, which it was thought would be appreciated by the breeders and be the cause of a larger and better exhibit."

PIG WEANING.

The most profitable pig is the one that is ready for market at not to exceed the age of eight or nine months; six or seven months is that much the better, and pigs that weigh 200 pounds and upwards at that age are the cheapest hogs raised on the farm, says S. A. Dyke in "Farmers' Guide." But in order to have them grow rapidly enough to make this weight so young, much care is necessary in weaning. Make a pen with a door in their yard, just large enough to admit the pigs only, feed them here by themselves when the sow is fed. Do this by putting feed in pigs' pen first and closing the door. Begin this when they are six weeks old, as they will be used to eating by this time. When the sow is through eating let them out of pen; keep this up for a week, then keep them shut up till noon, when they can be let out to suck; shut up again after sucking till night. In a few days more reduce to two times a day, morning and night, allowing them to sleep with their mother at night during this time. By the time they are two months old they can be taken away from the sow and removed to a new lot out of sight of her entirely. They should be fed in the meantime all they will take clean. Feed plenty of milk with a mush thoroughly mixed in made of middlings and corn meal. Watch that you don't over feed. Give clean, cold water middle of forenoon and afternoon. A little corn should be fed morning and evening, and this corn feed must be increased gradually until they get all they can use to good advantage. Keep up this kind of feeding, make their nest warm and clean with plenty of forest leaves for bedding, and those pigs should make a wonderful growth, provided always that they are worth so much trouble. Fall pigs cannot be expected to make the growth in winter that can be gotten in the spring, and mongrel stock is never worth feeding as a general thing. Good stock, warm quarters and generous feeding are the three main requirements in making your pigs pay.

MAMMITIS.

While not so common as in the cow, we often find cases of inflammation of the mammary glands (udders) in the sow, and when it is seen the loss of pigs is usually vexatious. Another common affection about this time of the year when sows are commencing to run out with their young pigs is sore teats, which comes from dragging the udder through wet smart weed or other poisonous weeds, says the "Farmers' Review." The first symptom of something the matter with the udder or teats is the refusal of the sow to let her pigs suck and the squealing of the youngsters will draw the attention of the owner so that the trouble may receive early attention. The udder is found to be red and inflamed, and the milk clotted or curdled within the udder. The udder rapidly becomes hard and lumpy and the milk or whey changes to pus which is a very serious condition and may be followed by sloughing (gangrene) or abscess, which must be opened and properly treated, and which makes it unwise to use the sow for breeding purposes another season, as the trouble is likely to return.

Whenever a sow is seen to be affected with inflammation of the udder she should have at once a full dose of epsom salts (four ounces in water or slop) and this should be followed up with ten grain doses of saltpeter and twenty drop doses of powdered poke root three times daily for a time until the swelling subsides. Softening and soothing of the udder is to be accomplished by fomenting with hot water three times daily and giving hand rubbings at the same time using camphorated oil or lard if it be not a great desideratum to restore the function of milk production, but where a litter is dependent upon the sow for sustenance camphor should not be used, as it tends to dry up the milk flow. In the latter cases it is better to substitute fluid extract of poke root and extract of witch hazel, one to four, or the lotion advised by Dr. McIntosh, viz.: Acetate of lead half an ounce; tincture of arnica, two ounces; water, one quart. If the udder is very much congested it is a good plan to suspend it with wide bandage around the body for the distended udder tends to aggravate the condition already present. Where lumps remain after the above treatment has been given for a few days the application of one part of mercurial ointment and one part of lard will be found useful, or iodine ointment may be rubbed in with similar effects.

If pus forms the part should be poulticed with hot flaxseed meal then opened with sharp knife and syringed out with warm 3 per cent carbolic acid solution and then with peroxide of hydrogen one part, water three parts until it comes away without foaming.

Some cases will go on to gangrene in spite of all treatment, but as a rule good treatment prevents this from happening. Where gangrene appears the part of the udder involved becomes cold, and wet and of a purple color at first, then greenish or bluish with a plain ring of demarkation between the living and dead tissues. This dead part should be removed by cutting or scraping and the parts left raw should then be treated with turpentine, one part, raw linseed oil two parts, adding a half ounce of carbolic acid to each pint of the oil used. Peroxide of hydrogen is also useful in these cases for cleansing and disinfecting purposes, but is rather too expensive to be used freely.

To prevent sore teats avoid the causes mentioned in the opening of this article. As a remedy apply sugar of lead half ounce in quart of water, then wet the teats with glycerine two ounces, compound tincture of benzoin, one ounce; water to make eight ounces.

FORAGE CROPS FOR PIGS.

Farmers' Bulletin 124 says: In many regions of the South and West successful pig raising depends in large measure upon satisfactory forage crops. When a crop can be grown cheaply gives a fair yield, produces satisfactory gains in weight and flesh of good flavor, its great value is evident. Some of the forage crops commonly grown for this purpose have the additional advantage that pigs can be turned on them, and thus the cost of harvesting and handling avoided. The value of different forage crops for pigs has been studied by several of the stations. Some recent work of this sort was done at the South Carolina and Oklahoma stations. At the South Carolina Station four lots of pigs were used in the test. One was fed Spanish peanuts, one sweet potatoes and one cow peas, while the remaining lot, which served as a standard for comparisan, was fed corn. On land of the same character as that which yielded 15 bushels of corn per acre the yield of Spanish peanuts was 90 bushels, cow peas 10 and sweet potatoes 200. With the exception of the cow peas, the cost of producing the crops would be practically the same, provided they were harvested by the pigs. The amount of the different feeding stuffs required to produce a pound of pork was: Corn, 6.02 pounds; Spanish peanuts, 4.43 pounds; sweet potatoes, 32.47 pounds; and cow peas, 4.91 pounds. Taking account of the gains made and the yield of different crops, and rating pork at five cents per pound, the corn was calculated to be worth $6.97 per acre, Spanish peanuts $24.37 per acre, sweet potatoes $18.47, and cow peas $6.12. The pigs used in this test, which covered 33 days, weighed from 117 to 200 pounds when the trial began. They were regarded as too large for the best results.

The hams from the pigs fed the various crops were cured in the same way. The shrinkage did not vary greatly, ranging from 22 to 27 per cent. The lean meat in the hams from the pigs fed Spanish peanuts exclusively was coarse and stringy. The hams were tainted somewhat, though treated like the others in every particular. The lard in these pigs had a lower melting point than that from those fed the other crops.

THE HOG IN THE ORCHARD.

Many orchardists have entirely abandoned the practice of turning hogs into orchards. They claim that the rooting of the hogs results in damage to the trees. Doubtless this is true, where the swine are left in the orchard too long, says G. G. G. in the "N. Y. Farmer."

The hogs should not be permitted to convert the orchard into a range. If they remain long enough, they will not only clean up all the dropped apples, but they will also clean up all the weeds and all the grass. Having done this, they are ready to injure and even kill the trees.

When they have cleaned the surface and begun to turn over the sod, the damage to the trees begins. Generally the damage is done by rooting and breaking the small roots of the trees. In sodded orchards the roots are near the surface, and the swine have only to stir the soil to destroy the grass roots and the small top roots of the trees.

For this reason it is bad to turn swine into the orchard with liberty to root at will. They may be let in to clean up fallen fruit and weeds. When that is done, they should be driven out. No hog wallow can be a profitable orchard.

HARRY SNEED, Smithton, Mo., one of our advertisers, has been a breeder of Duroc-Jersey hogs for over four years and breeds nothing but the best. Last year he won the first premium for the best pair of pigs in strong competition against Berkshires, Polands and Durocs. Last fall Mr. Sneed added to his herd a prize winner at the Nebraska state show, and she is pronounced by men who handle different breeds to be an extra good one and a credit to any herd. April 15 she farrowed nine pigs, and any one fortunate enough to get one of these is likely to get a prize winner. Write Mr. Sneed for full particulars.

The Shepherd.

MISSOURI SHEEP BREEDERS' ASSOCIATION.

Norman J. Colman, President, 1214 Chemical Building, St. Louis, Mo.
L. E. Shattuck, Secretary, Stanberry, Mo.

A FLOCK REPORT.

Editor RURAL WORLD: I will give to the readers an account of my luck with sheep. Last winter I started in with 89 head, 46 of them were two and three years old. I lost a last year's lamb, one ewe from getting crowded, and a fat wether that I think had inflammation of the lungs. I lost seven lambs, three from castration, the first time I ever lost any from this operation. I have 55 lambs, all doing well. I have a bunch of fat sheep I will ship soon. Ten of them were a year old in February. Will they go on the market as lambs? I am now shearing my sheep and they are averaging two pounds more per head than usual.

H. BELLAIRS.
Montgomery Co., Kas.

GOATS, TOBACCO, WAR AND MOHAIR

An "esteemed contemporary" comments on the statement made by Judge Samuel Miller in the RURAL WORLD of April 17 regarding the death of his Angora buck from eating tobacco, as follows:

The Angora goat is not a success as a tobacco chewer. A Missouri farmer who raises goats and tobacco discovered that fact after his buck had essayed to follow the example of man in masticating the "weed." Of course, the tobacco suited the goat's taste; that is not hard to suit except with good grass. Goats do not care much for grass or for grain either, unless they can steal it, when it appears to taste better to them. But they browse contentedly on brush and shrubbery, and it seems will take a good strong chew of tobacco when they get the chance. The Missouri buck that ate the tobacco has quit the habit; in fact, he has quit all habits and rests from his labors. And the relation of this incident may be made introductory to the statement that before the Transvaal war South Africa owned more Angora goats than any other country engaged in the production of mohair for sale on the world's market, but it is now reported that about 50 per cent of the goats in that unfortunate country have been killed off during the war; so that the price of mohair is apt to advance. It should at least insure a larger market for the hair that is clipped this season in other sections.

SHEEP SCAB.

In the May Bulletin of the Missouri State Board of Agriculture considerable attention is given to Sheep Scab. It is an important and timely subject, one which should receive the careful attention of sheep owners, and Secretary Ellis is to be commended for his effort to disseminate the latest information on how to combat this plague, which is the worst, excepting dogs, that sheep men have to contend with. We quote from the bulletin as follows:

In order to prevent the spread of scabies in sheep, and if possible to eradicate it entirely from the State, the Board of Agriculture adopted the quarantine regulations requiring all exposed or affected sheep to be dipped, before they can be driven or shipped from one point to another in the State. If every flock in the State could be dipped once each year, whether affected or not, the disease would soon be stamped out. For the purpose of giving information as to the best way to prepare and use the dips recommended we republish from the Fourteenth Annual Report of the Bureau of Animal Industry the following pages:

Losses in Home Industry.—The losses from sheep scab have been and are still very severe in most sheep-raising countries. They are due to the shedding of the wool, the loss of condition, and the death of the sheep. * * *

In the United States, some sections have been overrun with sheep scab, and many persons engaged in the sheep industry have been forced to forsake it because of their losses from this disease. It is probable that in its destruction of invested capital, sheep scab is second only to hog cholera among our animal diseases. The large flocks of the plains and Rocky Mountain region and the feeding stations farther east have suffered severely and are constantly sending diseased animals to the great stock yards of this country. As a consequence of this marketing of affected sheep, the stock yards are continually infected, and any sheep purchased in these markets are, unless properly dipped, likely to develop the disease after they are taken to the country for feeding or breeding. There is in this way a constant distribution of the contagion, and thousands of persons, who know little of its nature or the proper methods of curing it, find that they have introduced it upon their premises.

CAUSE OF SCAB.—Sheep scab is a strictly contagious disease.

Common Sort.—Common sheep scab is caused by that species of mites technically known as psoroptes communis. Parasites of this species cause scab in horses, cattle, sheep, goats and rabbits; but for each of these species of animals there appears to be a distinct variety of this parasite. Although it is more or less difficult to distinguish between these varieties, they differ somewhat in size, and it is found that the psoroptes communis of the sheep does not cause scab of the horse, ox, or rabbit; nor, on the other hand, does the psoroptes communis of the horse, ox, or rabbit cause scab of the sheep. Naturalists, therefore, distinguish the parasite of sheep scab by the name of psoroptes communis var. ovis.

The parasite of this disease is one of the larger mites, and is quite easily seen with the naked eye. The adult female is about one-fortieth inch long and one-sixtieth inch broad; the male is one-fiftieth inch long and one-eightieth inch broad. These mites are discovered more readily and more clearly on a dark than on a light background, and for that reason the crusts from the affected skin are often placed upon black paper and kept in the sunshine for a few minutes in order to reveal the parasites crawling about.

The psoropt inhabits the regions on the surface of the body which are most thickly covered with wool; that is, the back, the sides, the rump, and the shoulders. It is the most serious in its effects upon sheep of any of the parasitic mites, and it is the cause of the true body scab. * * *

Contagion.—Common scab is exceedingly contagious from one sheep to another, and may in some cases show itself within about a week after healthy sheep have been exposed to infection. The contagion may be direct, by contact of one sheep with another; or indirect, from tags of wool, or from fences, posts, etc., against which scabby sheep have rubbed, or from the places where the sheep have been bedded down. One attack of scab does not protect sheep from later attacks. Transmitted to man, sheep scab may produce a slight spot on the skin, a point which is sometimes taken advantage of for the purpose of diagnosis. In case of suspected scab, one of the crusts is bound lightly on the arm. After a short time an itching sensation is felt and the mites are found on the skin. * * *

Vitality of the Parasite.—Taken from the sheep, the mites possess a remarkable vitality. It is generally stated that, kept at a moderate temperature on portions of scab, the adults may live from four to twenty days, but they will occasionally live much longer; cases are on record where they have lived three, four, or even six weeks when separated from sheep; if the atmosphere is dry, they will generally die in about fifteen days; but death is often only apparent, for the mites may sometimes be revived by warmth and moisture even after six or eight weeks; the fecundated females are especially tenacious of life. * * * From the data at hand, while it may be admitted that in some cases, under favorable conditions, the mites may live from spring to fall, it is scarcely within the limits of probability that either the scab mites or their eggs will live through a winter when separated from the sheep and exposed to the elements.

All matters connected with the vitality of the scab mite have an important bearing in explaining cases of indirect infection on roads over which scabby sheep have been driven, or in fields and sheds where they have been kept. From the facts now at our disposal we can lay down the following important rules:

(1) Scabby sheep should never be driven upon a public road; (2) sheds in which scabby sheep have been kept should be thoroughly cleaned, disinfected, and aired, and should be kept unused for at least four weeks (better two months) before clean sheep are placed in them; (3) fields in which scabby sheep have been kept should stand vacant at least four weeks (better six or eight) before being used for clean sheep; (4) a drenching rain will frequently serve to disinfect a pasture; but it is well to whitewash the posts against which scabby sheep have rubbed. Even after observing the precautions here given it is not possible to absolutely guarantee that there will be no reinfection, but the probabilities are against it. * * *

CONDITIONS WHICH MAY BE MISTAKEN FOR SCAB.—Any parasite or condition which causes an itching, and thus leads the sheep to scratch themselves, or any abnormal condition of the skin, may be temporarily mistaken for scab; but if the rule is held in mind that no scab is possible without the presence of the specific parasites it will be easily determined whether scab is present or not. The following are the more important cases to be considered:

(1) Itching due to other parasites, such as the common sheep tick, true ticks, and lice, may be distinguished from scab by finding the parasites. The dipping used for treating scab will also kill ticks and lice.

(2) Inflammation of the sebacious glands.—This may be mistaken for common scab. It appears most frequently in autumn. There is a severe itching, the skin is red and sensitive, and is covered with a strong-smelling, yellowish, viscid yolk; tufts of wool may be shed. It may be cured, after shearing, with any starchy lotion.

(3) Rain Rot.—In rainy weather an eruption may appear on the skin which might be mistaken for scab. There is, however, no parasite present; itching is absent, and the trouble disappears when dry weather comes.

TREATMENT OF SCAB BY DIPPING. By far the most rational and satisfactory, and the cheapest method of curing scab is by dipping the sheep in some liquid which will kill the parasites. The dipping process is as follows:

(1) Select a dip containing sulphur. If a prepared dip is used which does not contain sulphur, it is always safer to add about 16½ pounds of sifted flower of sulphur to every 100 gallons of water, especially if, after dipping, the sheep have to be returned to the old pastures.

(2) Shear all the sheep at the one time, and immediately after shearing confine them to one-half the farm for two to four weeks. Many persons prefer to dip immediately after shearing.

(3) At the end of this time dip every sheep (and every goat also, if there are any on the farm).

(4) Ten days later dip the entire flock a second time.

(5) After the second dipping, place the flock on the portion of the farm from which they have been excluded during the previous four or five weeks.

(6) Use the dip at a temperature of 100 degrees to 110 degrees F.

(7) Keep each sheep in the dip for two minutes by the watch—do not guess at the time—and duck its head at least once.

(8) Be careful in dipping rams, as they are more likely to be overcome in the dip than are the ewes.

(9) Injury may, however, result to pregnant ewes, which must, on this account, be carefully handled. Some farmers arrange a stage with sides, to hold the pregnant ewes, which is lowered carefully into the vat, and raised after the proper time.

(10) In case a patent, or proprietary, dip, especially an arsenical dip, is used, the directions given on the package should be carried out to the letter. * * *

THE PREPARATION OF WOOL.

In regard to preparing your wool, we must emphatically say that more care must be taken by wool-growers and others in the preparation of wool for market, or the foreigner will drive them from the field. All tags or dunglocks should be removed from the fleece, as well as chaff, straw and burrs, as far as possible. "Stuffing" fleeces is a penitentiary offense in some states. The fleece should be rolled up rather loosely with the white or skin side out, and tied with regular wool twine crossed at right angles. Sisal or rough twine should never be used, as the fibers stick fast to the wool and render it unfit for use in many classes of goods. Most manufacturers refuse to buy fleeces tied this way, at any price. Burry, or other inferior stock, should never be mixed in with good wool, but should always be sacked separately. Australian and other foreign wools are handled even more carefully than suggested above, for the inferior locks on the belly, legs, neck and breech are clipped from the fleece altogether and sold separately as "locks and pieces."

We here give a few of the points which wool men should by all means follow, and we are confident that whether you ship to us or not, you will thank us for the information.

Shearers should be required to keep the body of fleeces whole.

Do not put in any manure or heavy tags.

Roll or fold fleeces so that all the outside will show white and clean, if possible.

Do not roll or fold too compactly; fleeces should feel elastic and "woolly."

Twine or tie average size fleeces twice each way.

Do not use binder twine for tying fleeces.

Use more twine on large and heavy fleeces.

Cubical shape of fleeces is preferred to rolled.

If any part of your clip is burry, sack by itself, and not lessen the prices of all by mixing it together in sacks.

Sack wool just close enough to have sacks stand up alone; never over 250 lbs. of any kind of wool.

Sew the mouth of sacks from one seam to the other, in same direction as seam at base of butt of sack.

Number all sacks and mark carefully, if not furnished with our tags.

St. Louis, Mo. A. J. CHILD & SON.

THE ZENNER DISINFECTANT CO., Detroit, Mich., has just issued a little book entitled Dipping Sheep for Profit, which will be sent free to any of our readers who will send his address to the company. Among those whose opinions on dipping are presented are such authorities as Professors Craig of the Iowa Experiment Station, Plumb of the Indiana Station, Mumford of the Michigan Station, Messrs. Harding and McKerrow of Wisconsin, and Geo. Allen of Illinois. The Zenner Disinfectant Co. makes Zenoleum, which is advertised in another column.

The Markets

WHEAT—Cash Market—By sample—No. 2 red sold at 75c to 75½c for fancy this side, and 75½c E. side; No. 3 red at 72½c to 74c; No. 4 at 65c to 70c; No. 2 hard quotable at 72¼@72¾c, and No. 3 hard at 79½@71½c. No. 2 hard salable 3c above July, and for Turkey, 72c bid to arrive, but latter held at 73½c.

CORN—Cash Market—No. 2 sold at 44¼@44c, mainly this side; No. 3 was offered at 43½c, and 41c the best bid, late selling at 43c. Yellow at 40½c; No. 2 white at 45c and fancy at 45⅝c; No. 3 white at 45@44c. On Levee, white sold at 44½c.

OATS—Cash Market—No. 2 sold, del. elevator, at 30½c, mainly to 30¼c; No. 3 at 30c and running to white at 30⅝c; No. 2 Northern at 30½c; No. 2 white at 31½c and clipped 32c; No. 3 white at 30⅝@31¼c; No. 4 white at 30¼@31c.

RYE—Little offered, but not much demand. Grade No. 2 quotable at 57c E. side.

HAY—Current rates on trk. for timothy, $14@14.50 for choice; $15 extra choice; $13@14 for No. 1; $11@12.50 for No. 2; $9.50@10.50 for No. 3 prairie; $11@11.50 for No. 1; $9.50@10.50 for No. 2; $8.50@9 for No. 3. Clover $9@12.

PRICES ON CHANGE.

The following tables show the range of prices in the future and cash grains:

	Closed Saturday.	Range Monday.	Closed Monday.
Wheat—			
May ...72½		73¼@72¾	72⅝ n
July ...69½@⅝		70@69¼@⅝	69¼@⅜ a
Sept ...68⅝ n		....@....	68½ n
Corn—			
May ...42 a		43¼@....	43½ n
July ...42⅝@½		42⅝@43	43 b
Sept ...42⅜		....@....	43¼ a
Oats—			
May ...30¼		30¼@....	30½
July ...27¼@⅜		27⅝@....	27⅝@¾
Sept. ..26 a		26 @....	26

Cash wheat, corn and oats.

	Range Monday.	Range Saturday.	Range Last Yr.
Wheat—			
No. 2 red	75 @75½	75 @75¼	71 @....
No. 3 red	72½@74	73 @73½	69 @70½
No. 4 white	66½@70	69½@70	63 @67
No. 2 hard	71½@72	72 @72½	64 @64½
No. 3 hard	71½@72	71½@72	62 @63
Corn—			
No. 2	44 @44¼	43⅝@44½	37⅝@38
No. 3	43⅝@....	43½@....	37½@38
No. 2 white	45 @45¼	45 @45¼	39 @39¼
No. 3 white	44½@44⅜	44½@....	....@....
Oats—			
No. 2	30½@....	30¼@30½	24 @24½
No. 3	32¼@32	29½@....	27 @28
No. 2 north	30⅝@....	30½@....	24¾@25
No. 2 white	31½@32	31 @31½	27 @28
No. 3 white	31 @....	31 @....	25½@27
No. 4 white	30⅜@....	30½@....	24¾@26

COTTON—Local spot quotations—Ordinary, 5 15-16c; good ordinary, 6 7-16c; low middling, 7 7-16c; middling, 7 11-16c; good middling, 8 3-16c; middling fair, 8 9-16c.

WOOL—Movement steadily increasing; receipts of new clip being larger, and including lots from all sections tributary to this market, but mainly from near-by points. Local dealers are keeping the offerings cleaned up close, and are paying full quotations, although the outside advices are still discouraging. Choice lots of unwashed running to combing were in best demand and strongest, and sell on basis of 17-½c, but no great strength or activity to the market for anything else—tubwashed, being comparatively higher than the unwashed, was weakest in price. While the market is in this comparatively good condition, shipments should be sent in promptly, and particularly the better qualities, competition being at its best here now for medium combing or choice lots of bright staple, and these desirable sorts can be sold to better advantage here than anywhere else.

Missouri and Illinois—Medium combing, 17@17½c; medium clothing, 16½@17c; braid and low, 15@16c; burry and clear mixed, 14@15c; slight burry, 13@14c; hard burry, 10@11c; light fine, 14@14½c; heavy fine, 10@11c; lamb, 15@15½c. Wisconsin and Iowa—Medium combing, 15½@16c; braid and low, 14@15c; semi-bright, 14@15c; dark, 13@14c; fine medium, 13@13½c; light fine, 12@13c; heavy fine, 10@11c. Kansa and Nebraska—Bright medium, 15½@16c; dark and sandy, 13@14c; fine medium, 13@13½c; light fine, 12@13c; heavy fine, 9@10c. Texas, Indian Territory and Oklahoma—Medium, 15@16c; coarse and low, 12@13c; fine medium, 11@13c; light fine, 11@12c; heavy fine, 9@10c. Dakota and West—Bright medium, 15@15½c; dark medium, 12@14c; fine medium,12@13c; light fine, 12@12½c;heavy fine 9@10c. Arkansas and Southern—Medium (fleeces), 16½@17c; medium (loose), 15@16c; burry, 11@12½c; hard burry, 9@9½c. Tubwashed—No. 1, 26@26½c; No. 2, 21@22c; burry, 17@18c. Angora goat hair—Long, 15@16c; short and low, 11@12c; burry and cotted, 8@8½c. Black and seedy at from 4c to 6c per pound less, 15c allowed on old and 20c on wool sacks.

LIVE POULTRY—Chickens—Average receipts, hens 7c; light hens 7½c; roosters, old or staggy, young 4c. Turkeys—Round lots 5c. Ducks 5@6c. Geese (top for full-feathered) 4c. Spring chickens selling by weight 15@17c per lb.; pigeons $1.50 per doz.; squabs $1@1.25.

DRESSED POULTRY—Iced stock, scalded and undrawn, with head and legs on: Chickens—Average 7@7½c; roosters 4¼c. Turkeys—Average 6c. Ducks 7c.

EGGS—Western higher at 10½c, loss off; but Southern not quotably better—9½c, loss off. Offerings light of choice stock.

BUTTER—Quiet, but steady. Although the demand was light and offerings very fair, yet receivers were firmer in their views as to prices; or, at least were not disposed to make concessions in order to sell. Fresh quotable at 9c for country in pails, 15c for dairy-packed and 15@16c for creamery.

Creamery—Extra, 18½@19c; firsts 16c; seconds, 15c. Country—Choice, 9c; poor to fair, 5@8c; grease, 3@3½c. Dairy—Extra, 14@15c; other grades less. Ladle-packed—Extra, 13c; firsts, 12c. In a small way ½c per pound or more is charged over the foregoing quotations for tub stock.

CHEESE—Jobbing: Twins, 10½c; singles, 10¾c; Y. A., 10¾c; N. Y., 10c. Limburger, 11½@12c; Swiss, 15@16c; brick, 11½c.

APPLES—Quote: Baldwin at $3.75@4.50, according to quality; (damaged, common and off stock less); russet at $4@4.25 for fancy; Ben Davis from $2.50@4.25; fancy willowtwig $4.50@5.

BLACKBERRIES—$1.75@2 per 6-gal. case.

STRAWBERRIES—Home-grown at from $1.25@1.50 per 3-gal. tray; Arkansas sold mainly at from $1.25@1.50 per 6-gal. crate, for choice, but soft stock sold for less, and a few fancy brought a little more. Tennessee sold at from $1.25@1.75 and Kentucky at from $1.25@1.75; Illinois and Missouri sold mainly at $1.50@1.75 per 6-gal. crate, but fancy stock brought more.

BROOM CORN—Quotable, per ton: Common plentiful and dull at $40@50, fair quiet at $55@60, choice in demand and scarce at $65@70—latter for bright green short brush only.

GRASS SEEDS—Millet in limited demand and only prime pure German wanted; average receipts quotable at 75c@$1 for poor to fair and $1.20 for the best—but prime worth more. Hungarian nominal at 65c to 80c per 100 pounds. Clover, timothy, redtop and bluegrass all out of season. Sale of 30 sacks millet at 95c.

STOCK PEAS—Whippoorwill unsettled in price. Would probably bring $1.70 per bushel.

SORGHUM CANE SEED—Lower to sell. In fact the bids were too low to be considered.

KAFFIR CORN—Nominal at 90c per 100 pounds.

BUCKWHEAT—Nominal at $1.30@1.35 per 100.

CASTOR BEANS—Bid $1.30 per bushel for prime in car-lots; smaller lots and inferior less.

HEMP SEED—Pure test at $2.75@3.00 per 100 pounds.

DRIED FRUIT—Nominal. Owing to lack of offerings and lack of demand there was not enough doing to establish accurate quotations. In absence of sales: Apples, evaporated—Rings at 3¼c to 4c, quarters at 3c to 4c, chops at ½@¾c, peelings at ½c; sun-dried—quarters at 2½@3c for good—inferior less. Peaches 1c to 1½c per pound.

WHITE BEANS—Hand-picked pea beans in a jobbing way from store at $1.92@1.95 per bushel; screened at $1.87@1.90 per bushel; country at $1@1.50. Lima beans at 7½c per pound.

HONEY—Comb at 10c to 13½c; fancy white clover 15@16c; inferior, dark and broken less. Extracted and strained in barrels, at 4½@5c, and in cans at 5@5½c—California more.

A HUNTERS' CAMP.

The picture presented above is that of the hunting camp of the Hon. Thos. B. North, Gray's Summit, Mo., a prominent farmer of Franklin county and member of the State Board of Agriculture. Judge North is the central figure in the group. The gentleman standing by the buck that hangs on a tree is Judge North's son, and the man who shot the buck.

LIVE STOCK.

HORSES—Although the general receipts summed up a considerable number, a great many were of the British cavalry variety, which had been contracted by local firms, and others were consignments intended for latter days of the week. Therefore, the immediate auction run was a few car loads, which were not a circumstance to the good demand which prevailed. This principally emanated from Eastern and foreign sources, but was alike active on local account for driving and pleasure classes. The quality was not as good as the demand would have seen it. Select 1,200 to 1,500-pound chunks were a leading want, but there was hardly any better than medium available. Considering the class, the trade was in equally as strong shape as the preceding week, but better quality would have materially assisted the life and energy of the trade. Harness horses sgold well.

Heavy draft—Common to good, $100@150; choice to extra, $160@200. Chunks, 1,150 to 1,350 pounds—Fair to good, $80@100; good to choice, $110@135. Coach horses and cobs—Fair to good, $135@175; choice to extra, $200@500. Horses for the South—Small, light drivers, fair to good, $35@50; choice to extra, $60@75; Southern drivers, large, $85@125. Export chunks, 1,200 to 1,400 pounds—Plain to good, $75@110; choice to extra, $115@150. Business drivers—Fair to good, $85@110; choice to extra, $125@160. Saddlers for Southern use—Fair to good, $75@90; choice to extra, $100@160; fancy gaited and New York saddlers, $150@300. Inferior horses—Common, small plugs, $25@35; heavy work plugs, $40@60.

MULES—Several car loads were reported on the Monday market, but they were divided among various interests; it was a limited run, and the leastly represented was the commission department. Trade last week closed in pretty good shape; there were frequent orders for Eastern mules, and the departure of nearly half a thousand English mules added tone to the situation. This week the market opens with steady characteristics. Fair commissions were in existence for miners and other grades of good big mules, and several car loads were purchased on the early market to go to Pennsylvania and other Eastern states. Values on the choice classes retain their unusual strength, exhibited during the last two months in particular. Their scarcity has created an enduring demand and has advanced prices to the highest point in years.

Quotations for broke mules, 4 to 7 years old:

14 hands, extreme range	$50 00@ 75 00
14 hands, bulk of sales	55 00@ 65 00
14½ hands, extreme range	60 00@ 85 00
14½ hands, bulk of sales	60 00@ 75 00
15 hands, extreme range	75 00@100 00
15 hands, bulk of sales	85 00@100 00
15½ hands, extreme range	90 00@120 00
15½ hands, bulk of sales	95 00@110 00
16 to 16½ hands, extreme range	110 00@160 00
16 to 16½ hands, bulk of sales	120 00@140 00

ST. LOUIS NATIONAL STOCK YARDS.

MarketReport Furnished by Evans-Snider-Buel Company.

Receipts for the week ending May 18 were 9,272 cattle, 38,631 hogs, 14,427 sheep, against 10,277 cattle, 38,612 hogs, 9,580 sheep the previous week. As compared with the corresponding week a year ago, cattle show an increase of 700, hogs decrease 700, sheep increase 3,500. Receipts at the four principal markets in round numbers for the week were 97,300 cattle, 313,200 hogs, 109,400 sheep, against 110,900 cattle, 315,200 hogs, 140,200 sheep the previous week, and 113,600 cattle, 327,100 hogs and 123,000 sheep the corresponding week a year ago.

Receipts in the native division were light. Prices opened the fore part of the week about 10 cents higher on all classes of beef cattle, but on Wednesday and Thursday, under more liberal receipts and unfavorable advice from other points, the market was slow and 5 to 10c lower on heavy weight cattle, while the cow and heifer, also light weight butcher steer, sold steady to strong. The market on Friday and Saturday closed in good shape, with the best heavy weight steers a shade stronger than last week,cows and heifers and also light weight butcher steers 10 to 15c higher. Good to choice stock steers and feeders in light supply, and values 10 to 15c better. The common and medium class were steady to strong. Veal calves show some improvement, while bulls, stags, oxen and canning grades were about steady. The best grade of milch cows with calves show decline of about $2 to $3 per head, while the common and medium classes were from $3 to $6 per head lower. Quotations based upon the following conditions are as follows:

Best native beef steers, strictly fancy cattle, 1,300 to 1,600 pounds average, $5.70 to $5.85; choice export steers, 1,300 to 1,600 pounds average, $5.50 to $5.65; good shipping and export steers, 1,300 to 1,600 pounds, $5.15 to $5.40; fair to medium shipping steers, 1,300 to 1,450 pounds, $4.75 to $5.10; the bulk of the native beef steers averaging 1,300 pounds and upwards, good quality, at $5.25 to $5.55, and the top was $5.60 for 1,400-pound offerings. Steers, 1,200 to 1,290 pounds average, full range, rough to best, $4.50 to $5.40, bulk of sales at $5.10 to $5.35; steers, 1,000 to 1,190 pounds average, full range, $4.50 to $5.55; bulk of sales at $4.75 to $5.10; steers weighing less than 1,000 pounds, full range, $4.00 to $4.90, bulk sold at $4.50 to $4.75. Feeding steers, fair to choice, 800 pounds and upwards, $3.50 to $4.85, the bulk at $4.20 to $4.70, and they were medium quality; common to choice stockers, $3.00 to $4.85, bulk at $4.00 to $4.40, and the quality was fairly good; stock heifers full range $2.50 to $4.70, and the bulk at $3.00 to $3.50. Fancy native heifers sell at $4.90 to $5.10 and there were very few on the market; choice native heifers sell at $4.60 to $4.85; good native cows and heifers sell at $3.75 to $4.50; medium cows at $3.10 to $3.65; fair cows, $2.60 to $3.00; inferior, light and old cows, $1.50 to $2.50; the bulk of the Southwest cows sold at $2.75 to $3.60 and the bulk of all the cows sold at $3.00 to $4.00. Canning cows sell at $1.25 to $2.85. Veal calves, full range, $3.50 to $6.75 per 100 pounds, bulk at $6.00 to $6.50 per 100 pounds. Heretics and yearlings sold at $2.50 to $4.00 per 100 pounds, with the bulk at $2.85 to $3.00. Bulls, full range, $3.00 to $4.25, bulk of sales $3.25 to $4.00. Stocker bulls sold at $3.00 to $4.00, the bulk at $3.10 to $3.50. During the week the milkers sold at a full range of $18.00 to $48.75 per cow and calf, the bulk of sales being at $28.00 to $40.00.

SOUTHERN CATTLE—Receipts for the week were light, aggregating about 170 cars as against 226 last week, 282 the week before and 177 the corresponding week a year ago. Grass offerings were in larger proportion than any time this season, and found a good demand at strong prices. The steer market closed about 10 cents higher than last Friday, while cows are a shade stronger. The light weight yearling heifers, which were in strong demand 10 days or 2 weeks ago, are a little weak. Bulls were in moderate supply, and maintained a good tone, and calves sold promptly on a steady basis. The best offerings in this division averaged 1,112 pounds and sold at $5.40.

During the week Texas and Indian Territory steers 693 to 1,285 pounds average sold at $3.25 to $5.40, with the bulk at $4.10 to $4.60; cows and heifers at $2.75 to $4.00, the bulk at $3.10 to $3.50; stags and oxen at $3.15 to $4.35, bulls at $3.00 to $3.75 and calves 185 to 228 pounds average at $9.00 to $9.25 per head. Arkansas and Louisiana steers 800 to 941 pounds average sold at $3.90 to $4.35, cows at $2.00, buls, stags and oxen at $2.75 to $3.35, and calves at $8.00 per head.

HOGS—Receipts for the week were moderate and prices generally satisfactory as compared with last week's closing price, a net gain of about 15c per 100 lbs. being secured. Friday and Saturday proved to be the best days of the week, and there was a good clearance at the following prices: Butchers and packers, $5.75 to $5.97½; Yorkers and shippers $5.65 to $5.75, heavy pigs $5.25 to $5.65, light pigs $4.25 to $5.25, rough heavies $5.00 to $5.50.

SHEEP—Receipts of sheep for the week just ending were moderate and a net gain of 10 to 15c per 100 was recorded over last week's closing prices. Spring lambs have arrived in quite liberal numbers, and are selling considerably lower than they were a week ago. We are still advising all shippers to shear both sheep and lambs before shipping. A good clearance was made at the following prices: Best sheep, clipped, $4.40 to $4.65; best lambs, clipped, $4.50 to $4.85; best bucks, $3.50 to $4.00; best spring lambs, $5.75 to $6.25.

Monday, May 20.—CATTLE—Receipts were light here to-day, bulk being in the quarantine division. Prices on all classes of native cattle was steady to strong as compared with the close of last week. Chicago reports 26,000 cattle, and their market 10 to 15c lower. Values in the Southern division was about steady as compared with last Saturday.

HOGS—Receipts moderate; market strong and active at last week's closing prices.

SHEEP—Receipts moderate and prices steady with last week's closing prices.

The feature of Friday's market was a load of 78 hogs weighing 251 lbs. sold by us at $5.97½. This was the extreme top for any weight hogs on that day.

A NEBRASKA LETTER.

Editor RURAL WORLD: This part of Nebraska is, at this writing, experiencing one of the nicest showers that one could wish to see, and it is a great blessing, for since spring opened we have only had one light shower, when 7-16 of an inch of rain fell. Although there was plenty of moisture at that time to give vegetation a good start, it was beginning to get pretty dry for the wheat, as it is nearly all a very thick stand, and will require more rain to mature it than it would if it were not quite so thick. Corn is about all planted and some coming up; pastures have started out well and with the rain that is now pattering on the roofs, in a few days this country will have on its best clothes, and everybody will be feeling hopeful and getting ready to take care of the biggest wheat crop ever raised in Southwest Nebraska.

JOHN FLEMING.

Clay Co., Neb., May 17.

DEMAND FOR HARVEST HANDS.

Kansas City, Mo., May 16.—A conference was held here to-day between D. W. Blaine, of Pratt County, Kan., representative of Kansas wheat growers; T. B. Gerow, superintendent of the Kansas State Employment Bureau, and E. B. Howard, superintendent of the Kansas branch of the Missouri Employment Bureau, regarding the problem of the securing of hands to harvest Kansas' enormous wheat crop. The harvest will begin in the Southern counties about June 10 and, moving northward, will be completed along the Nebraska border July 15.

During that time 20,000 more men than are now in the state will be needed to meet the demand. Men will be paid all the way from $1.50 to $2.50 a day and "found." Mr. Howard will look after those wishing to go to the wheat district from points in Missouri and east. Men from Eastern Kansas who wish to go should write to T. B. Gerow at Topeka. A rate of 1 cent a mile from Missouri River points to the wheat belt, where men go in blocks of five or more, has been practically arranged for. These rates only apply to points in Kansas west of a line drawn north and south through Junction City.

ILLINOIS FARMERS' INSTITUTES.

Coulterville, Ill., May 15.—A conference of Farmers' Institute delegates from the counties of the old Twenty-first congressional district, presided over by W. R. Kinsey, of Tamaroa, director of this district, and who is also president of the State Farmers' Institute, met at this place to-day for the purpose of selecting dates and places to hold the various county institutes. The following were selected:

St. Clair County—Belleville, October 31 and November 1.

Clinton County—Carlyle, November 1 and 2.

Monroe County—Waterloo, November 12 and 13.

Randolph County—Sparta, November 13 and 14.

Perry County—Pinckneyville, November 14 and 15.

Washington County—Nashville, November 19 and 20.

Marion County—Salem, November 20, 21 and 22.

The congressional round-up will be held in connection with the Marion County institute at Salem.

W. E. Broden, of Cutler, was indorsed by the conference for one of the members of the advisory committee of the state university, as provided for by the bill passed at the last session of the Illinois Legislature.

THE PRINCIPAL INSECT ENEMIES OF GROWING WHEAT.

There are many insects which feed on and injure growing wheat, but the greater proportion of the losses to wheat fields chargeable to insects is due to the attacks of less than half a dozen species. The most destructive of these pests is the chinch bug. The great damage to farm crops by this insect is due to its wide distribution, its prevalence more or less every year, the enormous multiplication in favorable seasons, and to the fact that it attacks all the cereals and most forage plants.

The next in importance is the Hessian fly. It is estimated that the damage to the wheat crop by this pest is about 10 per cent of the product in the chief wheat-growing sections of this country, which indicates an annual loss of 40,000,000 bushels and over. Next of importance are the wheat midge and grain plant-lice. Insects of second-rate importance are the wheat straw-worms, the wheat bulb-worm, army-worms, cutworms and various sawflies.

With the view of limiting the losses from insect pests, and notably the Hessian fly, the ravages of which in 1899-1900 so reduced the normal yield of wheat as to seriously interfere with the winter milling interests, the United States Department of Agriculture has had prepared and will soon issue Farmers' Bulletin No. 132, entitled "The Principal Insect Enemies of Growing Wheat."

The bulletin was prepared by Mr. C. L. Marlatt, M. S., First Assistant Entomologist, and is a condensed account of the principal insect depredators on growing wheat, discussed chiefly from the standpoint of means of control. A brief presentation of the life histories of the several species is given, with special reference to the bearing of remedial and preventive measures.

The reasons given for the excessive damage by the various grain pests noted in this country are the system of growing the same grain crops over vast areas year after year, which furnishes the very best conditions for the multiplication of the insect enemies of such crops, and the long, hot summers which also present the most favorable conditions for the increase of most insects. These two reasons are responsible for the much greater losses experienced in this country as compared with Europe, where the summers are cool and short.

The losses occasioned by these insects exhibit a wide range in different years, due as a rule to favorable or unfavorable climatic conditions, and also to the abundance from time to time of the parasitic and other enemies, which is a natural sequence of the multiplication of the host insects.

Preventives and remedies for the control of each of these insects are given.

The bulletin is for free distribution and can be obtained by application to Senators and Representatives in Congress or to the Secretary of Agriculture.

MISSOURI STRAWBERRY CROP.

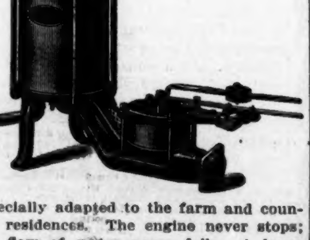
The first receipts of Missouri strawberries of the season came to St. Louis May 16 from Jefferson County, and met with ready sale. They were fine berries and arrived in good condition, bringing double the price of Arkansas and Texas berries.

They were of the "Michel's early" variety, and were grown by Martin Becker of Maxville, Mo. Only a few cases were in the shipment, which was consigned to William Hartman, and they sold for $1.75 a three-gallon tray.

Home-grown berries are expected to arrive freely by the first of next week, and Missouri strawberries are considered to be the finest grown.

PERPETUAL MOTION.

About the nearest approach to perpetual motion that we have ever seen is the Rife Hydraulic Engine. It runs for years without stopping and without expense after it is once started. It is designed to utilize water at a low head for raising a portion of itself or of other water to a higher level. It will elevate water up to any height or distance, and while made large enough to supply small towns, is



especially adapted to the farm and country residences. The engine never stops; the flow of water never fails. A large number of farmers are now using the Rife Engine, both to supply their barns and residences with water and for irrigation purposes. It works successfully under two or more feet of fall. The manufacturers place the engines with a special guarantee, allowing a 30 days' trial. The engine is sold at a reasonable price. Send for catalogue and description to Rife Engine Co., 126 Liberty St., New York.

COLD STORAGE.

There is no telling what refrigeration is doing among the people and for the people. Its influence is almost beyond comprehension, says the "Maine Farmer." It is meeting the demands of consumption among the people, it is modifying the requirements of trade, it is revolutionizing transportation, it is supplying the season of the winter's cold with the products of the summer's heat, it is carrying over the abundance of summer production into the shortage of the frozen season, it is evening up the price of the necessities as well as the luxuries of good living among the people, by leveling down the high prices of the non-producing season and bracing up the season of summer overduction. The delicate fruits of summer, heretofore known only in the vicinity where grown, are now transported over unlimited distance, thus extending the season of consumption and vastly increasing production. The choicest autumn products of the orchard are held in store, thereby extending their season through the winter months. Unmeasured quantities, and millions, in value, of perishable fruits are now grown and consumed that otherwise could not have found a buyer. Eggs, poultry and butter are carried from June to January with hardly a change in quality.

Production must necessarily be modified in accordance with these conditions. The line of effect in many directions suited to the requirements of but ten years ago, may not meet the demands of the present time. This change is constantly going on. It is, therefore, vitally important that the producer keep continually in touch with what is going on and the changes that are taking place in the great busy world around him. There is neither a place nor a time to stop. The invention of a piece of machinery or the improvement of a cold storage plant in Boston, like the vibrations on the wire of the telephone, widen their influence until they reach out to the producer in the orchard, the dairyman on the farm and the poulterer in his yards.

The June "Delineator" covers many varied interests of the home. It shows the latest styles for ladies, misses, girls and little folks, several pages being illustrated in colors so as to give a correct idea of color combinations. The ever-practical dressmaking article describes the construction of the new Di Vernon waist. Summer time comes in for its share of attention, by special articles being devoted to material for cycling skirts, to summer dress fabrics and to a number of new and pretty surf habits or bathing suits. Summer millinery is also illustrated in colors. The problems of moving day and after are dealt with very thoroughly by Margaret Hall and the etiquette required on the part of those who have moved into a new neighborhood is indicated by Mrs. Frank Learned in her Social Observances Department. Pastimes for Children, all sorts of fancy needlework for summer hours, indoor decorations and other varied interests come in for attention. The wonderful benefactions of Baroness Clara De Hirsch, who aided her husband in giving away $100,000,000, are described and illustrated by Sara K. Bolton. The short stories of the month are by Elmore Elliott Peake and William McLeod Raine. A collection of antique silver is described in a special article devoted to the subject by N. Hudson Moore. The illustrated Cookery deals with birthday parties and is very beautiful. There is much else of interest in "The Delineator;" a publication that safely claims for itself that there is no magazine published that can meet the needs of all women at so many points.

LETTER BOX.

SCOTT CO., S. E. MO.—We had quite a welcome visitor Saturday night, May 18, in a rain which was badly needed. Corn is about all planted; some has been plowed once. Wheat is mostly all headed and prospects are good for wheat crop here. Oats are not far enough along to tell as to what they will do. Whippoorwill peas are being sown now. Army worms have arrived and will likely do much damage to the timothy, which now looks fine. Corn is 50c per bushel, but scarce. Timothy hay, $14 per ton.

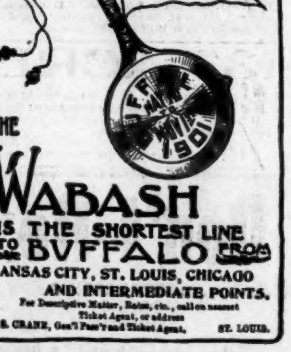
B. C. MOORE.

CHICAGO NOW A SEAPORT.

Chicago has long been the leading metropolis of the West, and now the great inland city bids fair to become the London of America—the great entrepot of the world's commercial activities.

On April 22 the steamship "Northwestern," carrying a cargo of McCormick machines, cleared from the port of Chicago bound for Liverpool, England. This vessel is the first to go from the great manufacturing center of the West direct to Europe. Following the steamer "Northwestern" the "Northman," also carrying a cargo of McCormick machines, cleared from the McCormick docks April 24 bound for Hamburg, Germany. The cargoes of the two vessels comprised more than 144 car loads of McCormick machines, mostly self-binders and mowers. In making this initial shipment by an all-water route direct to Europe the McCormick Harvesting Machine Company has made Chicago a seaport and established a line of freighters that during six months of the year will ply regularly between the Lake City and European ports. Thus the great McCormick Company, the largest manufacturer of harvesting machinery, has set a new pace in the matter of harvesting machine shipments, the far-reaching importance of which can only be known when the history of the twentieth century shall have been written.

A BARGAIN.—The farm of 137 acres, only 68 miles down the Frisco R. R., and offered for sale in the advertising columns by S. E. Newhouse, 1021 Fullerton Bldg., St. Louis, is a bargain, being practically worth nearly double the price asked for it. Mr. Newhouse will be found a safe man to do business with.



SUGAR FROM WATER.

Henry Oxnard, who may be said to be the original beet sugar man in the United States, says "National Irrigation" for May, states that sugar beets reach their highest degree of perfection, commercially, under irrigation. In sugar content, purity, and yield per acre the greatest excellence is produced by giving the crop the moisture needed at just the right time. The sugar-beet industry in this country is a young giant, and the irrigated beet area is rapidly increasing.

LARGE IRRIGATION CONSTRUCTION.

The government of India is undertaking some irrigation works which will add large areas of reclaimed land to the many millions of acres which the British government has already placed under irrigation. The total cost of this present development will be somewhat upwards of forty millions of dollars. The water used is the melted snows from the great Himalayan range.

GUY ELLIOTT MITCHELL.